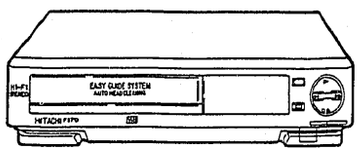
HITACHI

SERVICE MANUAL

TK | No.4304E

VT-F370A/F371A
VT-F372A/F375AW



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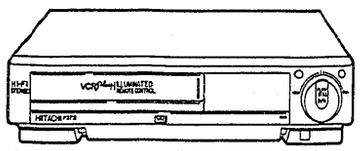


— VT-F372A / F375AW —

■Technical Specifications

Recording:	Rotary two-head helical scan azimuth recording
Video:	NTSC color EIA standard
Cassette:	VHS type
Heads:	4 video heads 2 for SP, 2 for EP 2 hi-fi audio heads 1 full track audio/video erase head 1 combination head for control track, audio erase and audio record/play (3 heads/single housing)
Tape Speed:	33.35 mm/sec (SP), 16.67 mm/sec (LP) (playback only), 11.12 mm/sec (EP)
Tape Width:	12.7 mm
RF Output:	Channel 3 or 4
RF Input:	UHF/VHF 75 ohm
Tuning Range:	VHF LOW CH, 2 – 6 (54 MHz–88 MHz) VHF MID CH, A-5 – A-1 and A-I (90 MHz –174 MHz) CATV VHF HIGH CH, 7 – 13 (174 MHz – 216 MHz) VHF SUPER CH, J – W (216 MHz – 300 MHz) CATV VHF HYPER CH, W+1 – W+28 (300 MHz – 468 MHz) CATV UHF CH, 14 – 69, W+29 – W+84 (470 MHz – 806 MHz)
Video Input:	1 – 2 Vp-p 75 ohm unbalanced
Video Output:	1 Vp-p 75 ohm unbalanced
Audio Input:	316 mV rms (-7.8 dB) 50 kohm
Audio Output:	316 mV rms (-7.8 dB) 1 kohm
Video Recording S/N:	Better than 45 dB (SP), better than 40 dB (EP)
Horizontal Resolution:	240 lines (SP), 230 lines (LP) (playback only), 230 lines (EP)
Audio Response:	50 Hz – 10 kHz (SP), 100 Hz – 6 kHz (EP)
Audio S/N:	Better than 43 dB (SP), better than 40 dB (EP)
Hi-Fi Audio	Frequency Range: 20 Hz to 20 kHz Dynamic Range: 90 dB Wow and Flutter: Less than 0.005% WRMS
Power Input:	AC 120 V 60 Hz
Power Consumption:	28W nominal
Cabinet Size:	14-15/16" (W) x 3-1/4" (H) x 12-11/16" (D) 38.0 cm (W) x 8.2 cm (H) x 32.3 cm (D)
Weight:	11.7 lbs. (5.3 kg)
Accessories:	1 coaxial cable (Part No. 5861141), 1 remote control unit (Part No. 5616491), 2AA batteries

Design and specifications subject to change without notice.

VHS

This video desk is a VHS type video recorder. For proper operation, only the VHS type cassette must be used.

MANUALS RELATED TO THE VT-F370A/F371A/F372A/F375AW

Name of Manual	Language	Manual No.	Chapters included
Technical Data	English	4304E	Chapters 1-8
Adjustment	French	4305F	Chapters 3,4
ACE Mechanism for VCR (T/I)	English	3699E	———

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

VIDEO CASSETTE RECORDER

February 1993 TOKAI Consumer Electronics Division

SAFETY PRECAUTIONS

NOTICE: Comply with all cautions and safety related notes located on or inside the cabinet and on the chassis.

1. When replacing a chassis in the instrument, all the protective devices must be put back in place, such as barriers, non-metallic knobs, adjustment and compartment covers/shields, isolation resistors/capacitors, etc.
2. When service is required, observe the original lead-dress. Extra precautions should be taken to assure correct lead dress in the high voltage circuit.
3. Always use the manufacturer's replacement components. Especially critical components as indicated on the circuit diagram should not be replaced by other manufacturer's. Furthermore, where a short-circuit has occurred, replace those components that indicate evidence of overheating.
4. Before returning an instrument to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the instrument by the manufacturer has become defective or inadvertently defeated during servicing. Therefore, the following checks should be performed for the continued protection of the customer and service technician.

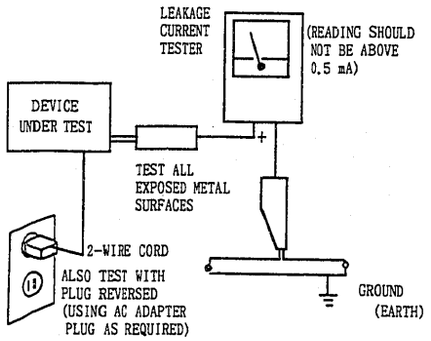
Leakage Current Cold Check

With the AC plug removed from the AC120V, 60Hz source, place a jumper across the two plug prongs. Turn the AC power switch on. Using an insulation tester (DC500V), connect one lead to the jumpered AC plug and touch the other lead to exposed metal parts (antennas, screwheads, metal overlays, control shafts, etc.), particularly any exposed metal part having a return path to the chassis. Exposed metal parts having a return path to the chassis should have a minimum resistor reading of 0.3 Mohm and a maximum resistor reading of 5 Mohm. Any resistor value below or above this range indicates an abnormality which requires corrective action. Exposed metal parts not having a return path to the chassis will indicate an open circuit.

Leakage Current Hot Check

Plug the AC line cord directly into a AC120V, 60Hz outlet (do not use an isolation transformer for this check).

Turn the AC power switch on. Using a "Leakage Current Tester", measure for current from all exposed metal parts of the cabinet (antennas, screwheads, metal overlays, control shaft, etc.), particularly an exposed metal part having a return path to the chassis, to a known ground (earth) (water pipe, conduit, etc.). Any current measured must not exceed 0.5 mA.


LEAKAGE CURRENT TESTER
(READING SHOULD NOT BE ABOVE 0.5 mA)
DEVICE UNDER TEST
TEST ALL EXPOSED METAL SURFACES
2-WIRE CORD
ALSO TEST WITH PLUG REVERSED (USING AC ADAPTER PLUG AS REQUIRED)
GROUND (EARTH)

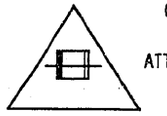
AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE UNIT TO THE CUSTOMER.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts have special safety-related characteristics. These are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for a higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual. Electrical components having such features are identified by marking with a ⚠ on the schematics and the parts list in this Service Manual. The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards. Product safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies for, HITACHI Service Manual may be obtained at a nominal charge from HITACHI SALES CORPORATION.

CAUTION ON FUSE REPLACEMENT



CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE, AMPERAGE, VOLT FUSE.

ATTENTION : AFIN D'ASSURER UNE PROTECTION PERMANENTE CONTRE TOUT RISQUE D'AMORÇAGE ÉLECTRIQUE, REMPLACER UNIQUEMENT PAR UN FUSIBLE DE MÊME TYPE ET DE AMPERES VOLTS.

This symbol indicates a Fast Operating Type Fuse.

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COMPARISON WITH PREVIOUS MODEL

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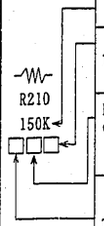
FEATURES	REC /PLAY SYSTEM	VHS Hi-Fi	VHS Hi-Fi
	NUMBER OF CHANNELS	181 CH	181 CH
	CHANNEL PRESET	F.S AUTO TUNING	F.S AUTO TUNING
	TIMER REC PROGRAM	8 PROGRAMS / 1 YEAR	8 PROGRAMS / 1 YEAR
	TIMER BACK-UP	ABOUT 30 MIN.	ABOUT 5 SEC. (VT-F370A/F371A) ABOUT 30 MIN.(VT-F372A/F375AW)
	MODE DISPLAY	OSD / FL DISPLAY	OSD / FL DISPLAY
	TIMER PROGRAMMING	OSD (BY REMOTE CONTROL)	OSD (BY REMOTE CONTROL)
	CHANNEL TUNING	OSD (BY REMOTE CONTROL)	OSD (BY REMOTE CONTROL)
	CLOCK SETTING	OSD (BY REMOTE CONTROL)	OSD (BY REMOTE CONTROL)
	OSD LANGUAGE	3 LANGUAGE	3 LANGUAGE
	SPECTRA SONIC	NO	NO
	COUNTER DISPLAY	OSD/FL DISPLAY	OSD/FL DISPLAY
	SCANAPLAY INDEX	YES	YES
	COUNTER GO-TO	YES	YES
	AUTO TRACKING	YES	YES
	LINE/TUNER SELECTOR	YES (BY REMOTE CONTROL)	YES (BY REMOTE CONTROL)
	PICTURE CONTROL	NO	NO
	PROBLEM GUIDE	YES	YES
	LEVEL METER	YES	YES (VT-F372A/F375AW)
	COUNTER REMAIN	NO	NO
	FRONT A/V INPUT	YES (VT-F365AW)	YES (VT-F371A/F372A/F375AW)
	EDIT IN/OUT JACK	YES (VT-F362A/F365AW)	YES (VT-F372A/F375AW)
	HIGH SPEED REWIND (2.5 min.)	YES	YES
	PROGRAM EDIT	NO	YES (VT-F372A/F375AW)
	MOVIE RETURN	YES	YES
	VCR PLUS +	YES (VT-F362A)	YES (VT-F372A/F375AW)
	SHUTTLE RING	YES	YES (VT-F372A/F375AW)
CHASSIS	BASIC CHASSIS TYPE	ACE MECHANISM	ACE MECHANISM
	LOADING MECHANISM	FULL LOADING	FULL LOADING
	HEADS ON CYLINDER	DA4 HEADS + Hi-Fi	DA4 HEADS + Hi-Fi
	FLYING ERASE HEAD	NO	NO
	HEAD CLEANING MECHANISM	YES	YES/NO(VT-F371A)
MAIN CONTROL ICs	VIDEO CIRCUIT		
	LUMINANCE / CHROMA PROCESS	HA118158NT (IC201) HA118157NT -F365AW ONLY- (IC201)	HA118158NT (IC201) HA118157NT -F375AW ONLY- (IC201)
	CCD 1H DELAY	CXL5507P (IC203)	CXL5507P (IC203)
	AUDIO CIRCUIT		
	Hi-Fi AUDIO PROCESS	XRA7703K1 (IC501)	XRA7703KP (IC501)
	LINEAR AUDIO PROCESS	LA7297 (IC401)	LA7297 (IC401)
	BASS BOOST AMP	———	———
	MPX DECODE	SBX1637-01 (IC503)	HTS7332 (IC503)
	SERVO CIRCUIT		
	PHASE / SPEED CONT.	HD49781NT (IC601)	HD49781NT (IC601)
	CYLINDER MOTOR DRIVE	———	———
	TIMER / SYSTEM CONTROL CIRCUIT		
	TIMER/SYSTEM CONTROL μP	M38184M8-108FP (IC901)	M38184M8-114FP-F370/F371-(IC901) M38184MA-051FP-F372/F375-(IC901)
	LOADING MOTOR DRIVE	XRA6209U4 (IC904)	XRA6209U4 (IC904)
	EA-ROM	X24C01A (IC903)	X24C01A -F372A/F375AW- (IC903)
	OSD CIRCUIT		
	CG μP	M35010-012SP (IC1401)	M35010-012SP -F370/F371-(IC1401) M35010-085SP -F372/F375-(IC1401)
	PLL H.SYNC GEN	BA7046A (IC1441)	BA7046A (IC1441)
	POWER SUPPLY CIRCUIT		
	5.6V REGULATOR	M5F7805L (IC851)	M5F7805 (IC851)

WHEN USING THIS SERVICE REFERENCE MATERIAL

1. How to Read Abbreviations

Values, dielectric resistances (power capacitances), tolerances, grades of resistors (excluding variable resistors, etc.) and capacitors are indicated in the schematic diagrams using abbreviations. Collate these abbreviations and the following tables to read abbreviations and replace parts correctly.

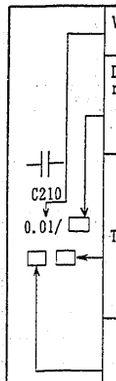
[RESISTORS]



Value	No indication ····· ohm K ····· kohm
Tolerance	No indication ····· ± 5% K ····· ±10% M ····· ±20%
Power capacitance	No indication ····· 1/8W (All capacitances other than 1/8W are indicated in schematic diagrams with W omitted.)
Type	No indication ·· Carbon film fixed RC ····· Carbon solid RW ····· Power-type wire wound solid RS ····· Metal oxide film solid RN ····· Metal film solid

Example
R210
150K ····· 150 kohm, carbon solid
RC.1/2.K 1/2W, ±10%

[CAPACITORS]



Value	No indication ····· μF P ····· PF
Dielectric resistance	No indication ····· 50WV (All resistances other than 50WV and those of electrolytic capacitors are indicated with WV omitted.)
Tolerances	No indication ····· ±10% J ····· ± 5% M ····· ±20% C ····· ±0.25PF Z ····· +80%-20% (No indication for electrolytic capacitors. (excluding tantalum and high stability electrolytic capacitors.)
Type	No indication ··· Ceramic, general electrolytic (see circuit symbol to distinguish from ceramic.) MYL ····· Mylar (Polyester film) STY ····· Styrol TA ····· Tantalum KU ····· High stability electrolytic MP ····· Metallized paper

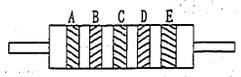
Example
C210
0.01/25 ····· Mylar, 0.01μF, 25WV
MYL.J ±5%

2. Markings in Schematic and Circuit Board Diagrams

(1) Parts with marks "■" attached to circuit numbers in the schematic and circuit board diagrams are discrete components.
(2) Parts with marks "●" attached to circuit numbers in the schematic and circuit board diagrams are chip components.
(3) Parts with marks Ⓩ in the circuit board diagrams are leadless jumpers.

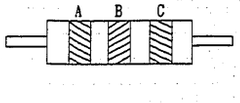
3. How to Read Capacitance of Resistance-Type Capacitors and Coils

[CAPACITOR]



CAPACITY : (10A+B)×C (PF)
TOLERANCE : D
RATED VOLTAGE : BODY COLOR
PINK : 25V
GREEN : 50V
CHARACTERISTICS : E

[COIL]



INDUCTANCE : (10A+B)×C (μH)

COLOR	A, B	C	D	E
Black	0	10^0	±20%	For temperature compensation
Brown	1	10^1		
Red	2	10^2		
Orange	3	10^3		
Yellow	4	10^4		
Green	5	10^5		
Blue	6			
Violet	7			
Gray	8		±30%	High dielectric constant type
White	9			For temperature compensation
Gold		10^{-1}	± 5%	
Silver		10^{-2}	±10%	High dielectric constant type

4. Cautions on Use of MOS ICs

(1) MOS ICs are inserted in black foam for shipment. This foam is a conductor which short-circuits between the leads to prevent damage. Do not remove ICs from this foam during storage. Avoid removing ICs from this foam, placing them on plastic which is likely to be charged with static electricity or inserting them into styrol foam.
(2) High voltages may be applied during soldering caused by leakages from the soldering iron. Be sure to ground the tip of the soldering iron or use a low voltage soldering iron.
(3) The human body and clothes made of synthetic fiber or nylon gloves may be charged with several thousand volts of static electricity because of friction. Workers should be grounded.

SERVICE MANUAL ABBREVIATION LIST

A	
ACC	Automatic Color Control
ACK	Automatic Color Killer
ADC B-Y	Analog to Digital Converted B-Y Signal
ADC R-Y	Analog to Digital Converted R-Y Signal
ADC Y	Analog to Digital Converted Luminance
ADD	Adder
ADRS	Address
A.DUB	Audio Dubbing
AF	Autofocus
AFC	Automatic Frequency Control
AGC	Automatic Gain Control
AGC KILLER	AGC Killer Voltage
ALC	Automatic Level Control
AIC	Automatic Iris Control
AM	Amplitude Modulation
AMP	Amplifier
APC	Automatic Phase Control
ASBL	Assemble (Phase Matching)
AUD.	Audio
AUX	Auxiliary
A5V	Always 5V B+ Source
B	
B (BLU)	Color Signal BLUE
BATT.	Battery
BF	Burst Flag
BG	Burst Gate or Back Ground
BGP	Burst Gate Pulse
BH	Power Supply for Selecting VHF High Band
BL	Power Supply for Selecting VHF Low Band
BLK	Blanking
BM	Power Supply for Selecting VHF Mid Band
BPF	Bandpass Filter
BS	Power Supply for Selecting VHF Super Band
BU	Power Supply for Selecting UHF Band
BU	Back-up
BUF.	Buffer Amplifier
B-YL	Battery
C	
C	Chroma
C (CHROMA)	Chrominance Signal
CAPST.	Capstan
CAS	Column Address Strobe
CARRI.	Carrier
CATV	Cable TV
C.BLANK	Chroma Blanking
C.BLK	Composite Blanking
CCD	Charge Coupled Device
CG	Character Generator
C.FG/CFG	Capstan Frequency Generater
C.FREE RUN	Chapstan Free Run
CH	Channel
CHD	Camera Horizontal Drive Pulse
CHAR.	Character
CHROMA	Chrominance
C.MEMORY	Counter Memory
CNR	Chroma Noise Reducer
COM.	Common
COM.	Composite
COMPA	Comparator
COMPE	Compensator
COMPO	Composite
COMP-EXP	Compressor-Expander
CONV.	Converter
CONT	Control
CORR.	Correlation
COUNT.	Counter
CP	Clamp Pulse
C.PAUSE	Camera Pause
C/R	Capacitor/Resistor
C.RESET	Counter Reset
C.REVERSE	Count Reverse
CST	Cassette

C	
C.SYNC	Composite Synchronizing Signal
CTL	Control Track Pulse (Control)
CYL	Cylinder
CY (CYAN)	Color Signal CYAN
D	
DA	Double Azimuth
D/A	Digital to Analog Converter
D-D	Direct Drive
DEEMPHA.	Deemphasis
DEF	Deflection
DEMOD.	Demodulator
DEMPX	Demultiplexer
DET	Detector
DIFF. AMP	Differential Amplifier
DISCRI.	Discriminator
DISP.	Display
DL	Delay Line
DN	Down
DO	Dropout
DOC	Dropout Compensator
DRAM	Dynamic Random Access Memory
D.REF 25/30	Delayed Reference 25/30Hz
D.SW 25/30	Delayed Switching 25/30Hz
DSP	Digital Signal Processor
DT/OE	Data Transfer/Output Enable
D/W	Dark/White
DWC	Delayed Write Clock
E	
EA-ROM	Electrically Alterable Read Only Memory
E-E	Electronic-to-Electronic
EMPHA.	Emphasis
EQ	Equalizer
EVF	Electronic Viewfinder
EXT.	External
F	
F.ADV	Frame Advance
F/V	Frequency-to-Voltage Converter
FB	Feed Back
FF	Flip Flop
F.FWD	Fast Forward
FG	Frequency Generator
FM	Frequency Modulation
FREQ.	Frequency
FRAME ADV	Frame Advance
Fsc	Color Sub Carrier Frequency
FWD	Forward
G	
GEN	Generator
GND	Ground
H	
H	Horizontal
HBF	Horizontal Burst Flag
HD	Horizontal Drive
Hi-Fi	High Fidelity
HLT	Halt
HPF	High-pass Filter
HPL	High-pass Limiter
HSS	Horizontal Sync. Separator
I	
IF	Intermediate Frequency
INC	Row Counter Increment
INDI.	Indicator
INT.	Internal
INV.	Inverter
I/O	In/Out (Input/Output)
IR	Infrared Rays
IRIS DET	Iris Detection
IRT	Instant Recording Timer
L	
LCD	Liquid Crystal Display
LIN.	Linear
LM	Loading Motor

L	
LNC	Line Noise Canceller
LOG	Logarithm
LP	Long Play
LP (H)	Long Play Signal (Active High)
LPF	Low-pass Filter
LUMA	Luminance
L/R	Left/Right
M	
MAN	Manual
M.BRAKE	Main Brake
M.CUT	Monitor Cut
MEM.	Memory
MEM ON	Memory ON
MEM SW	Memory Switch
MEM VIDEO	Memorized Video
MIX	Mixer
MMV	Monostable Multivibrator
MOD.	Modulator
MPX	Multiplex
MPX VIDEO	Multiplexed Video
M.STATE	Mechanism State
M.STOP	Memory Stop
MTS	Multi Channel Television Sound
N	
NEG	Negative
NFB	Negative Feed Back
NORM. or NOR.	Normal
NR	Noise Reduction
O	
OB	Optical Black
O/E	Odd/Even Field
OSC	Oscillator
OSD	On-Screen Display
P	
PB/PLAY	Playback
P.CONT	Power Control
PIF	Picture Intermediate Frequency
PG	Pulse Generator
P IN P	Picture in Picture
PIX MOVE	Picture Move
PLL	Phase Locked Loop
POS.	Positive
POWER CONT.	Power Control
PROG.	Program
PROTECT.	Protector
PWM	Pulse Width Modulation
R	
R (RED)	Color Signal RED
RAM	Random Access Memory
RAS	Row Address Strobe
RC	Reading Clock
RCC	Reading Clock Clear
RCR	Row Counter Reset
REC	Record
RECT.	Rectifier
REF	Reference
REF 25/30	Reference 25/30Hz from servo circuit
REG	Regulator
REL	Refresh Control
REW	Rewind
REV	Reverse
RF	Radio Frequency
RM	Reel Motor
ROM	Read Only Memory
R-YL	Color Difference Signal R-YL
S	
SAP	Second Audio Program
SAW	Sawtooth
SC	Serial Control
SC1 (0°)	3.58MHz Subcarrier Signal 1 (0-degree Phase Shifted)

S	
SC2 (90°)	3.58MHz Subcarrier Signal 2 (90-degree Phase Shifted)
SEP.	Separator
SG	Signal Generator
S/H	Sample and Hold
SIF	Sound Intermediate Frequency
SOL	Solenoid
SP	Standard Play
SP/LP	Standard Play/Long Play
S.REEL	Supply Reel Sensor
SRCH	Search
SRV	Servo
STABI.	Stabilizer
S.TRACK	Slow Tracking
STBY	Standby Mode
S-VHS	Super VHS
SW 15Hz	15Hz Head Switching Pulse
SW 25/30Hz	25/30Hz Head Switching Pulse
SYNC	Synchronizing signal
SYS.CON	System Control
T	
T (TELE)	Telephoto Angle
T.BRAKE	Take-up Brake
T/L	Tuner/Line
TP	Test Point
T.REEL	Take-up Reel Sensor
T.RESET	Timer Reset
TRS	Transfer
TμP	Timer Microprocessor
TU-μP	Tuning Microprocessor
U	
U/D	Up/Down
UNI.	Unified
V	
V (VERT)	Vertical
VAR	Variable
V.AGC	AGC Voltage
VCA	Voltage Controlled Amplitier
VCO	Voltage Controlled Oscillator
V.DRV	Vertical Drive Pulse
V.DUB	Video Dubbing
V/F	Voltage to Frequency Converter
VHS	Video Home System
VF	Focus Voltage
VOL.	Volume
V-REF	Voltage Reference
VP	Vertical Pulse
VSS	Vertical Sync. Separator
Vss	Voltage Super Source
VT	Tuning Voltage
VT-U	Tuning Voltage-UHF
VT-V	Tuning Voltage-VHF
VCXO	Voltage Controlled Crystal Oscillator
W	
WC	Write Clock
WCC	Write Clock Clear
WE	Weighting
WHT	Color Signal WHITE
WIDE	Wide Angle
WHD	Wide Horizontal Drive
WHT BAL CONT.	White Balance Control
Y	
Y	Luminance Signal
Y/C	Luminance/Chrominance
YE (YEL)	Color Singal YELLOW
YL	Luminance Signal (Low Component)
ANOTHER	
μP	Microprocessor
5V	ON 5V B+ Source
9V	ON 9V B+ Source

DISASSEMBLY

1. NAMES AND LOCATIONS OF CIRCUIT BOARDS

[Procedure when removing]
Remove the components in the order of letters (A, B, C ···) in the illustrations.
[Procedure when reinstalling]
Reinstall the components by the reverse procedure to removal when not otherwise specified.

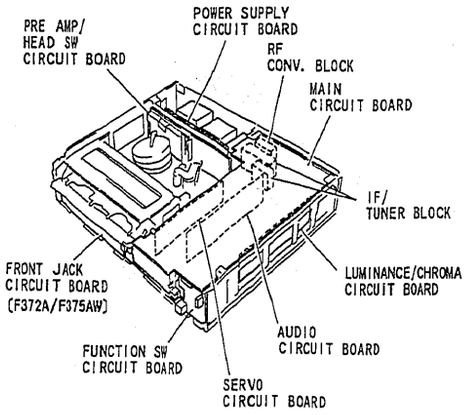


Fig. 1-1 Top View

2. CASE REMOVAL

1. Top Cover

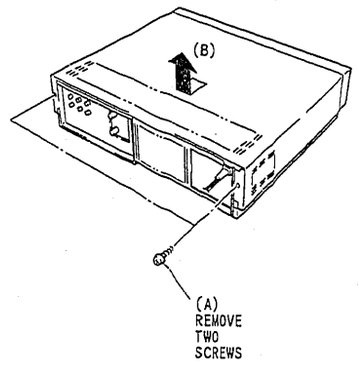


Fig. 2-1

2. Bottom Cover

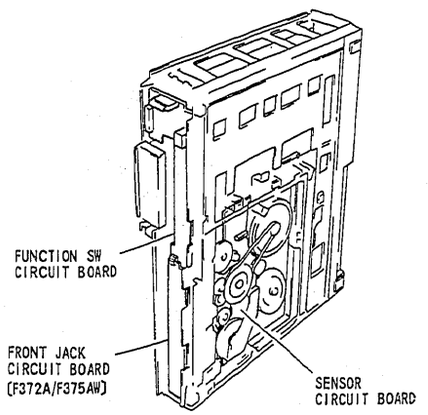


Fig. 1-2 Bottom View

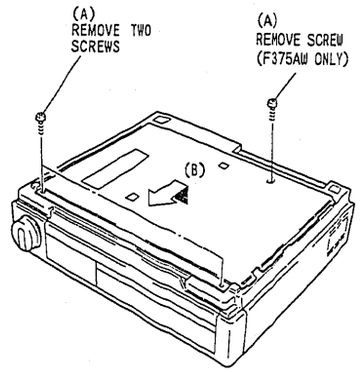


Fig. 2-2

3. Front Panel
◆ Components to remove first
1) Top Cover (Item 2-1)
2) Bottom Cover (Item 2-2)
◆ Caution when reinstalling
· Reinstall the front panel while the cassette door is pushed in halfway so that the boss of door actuating arm can be positively engaged with the recess on the side of the door as shown below.

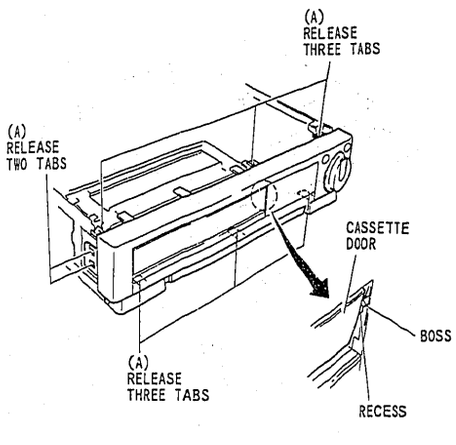


Fig. 2-3

4. Cassette Door
◆ Components to remove first
1) Front Panel (Item 2-3)
◆ Caution when reinstalling
· Attach the spring at the right of the cassette door firmly.

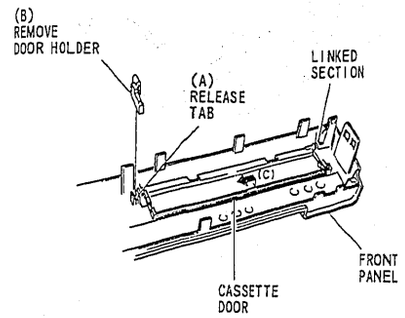


Fig. 2-4

5. Rear Panel
◆ Components to remove first
1) Main circuit board (Item 3-3)

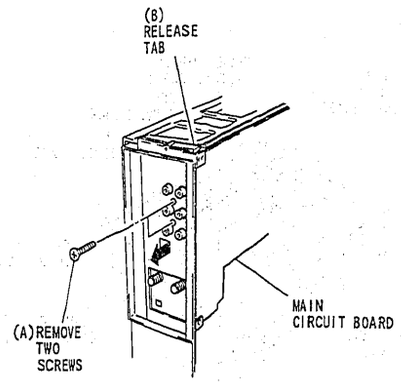


Fig. 2-5

3. CIRCUIT BOARD REMOVAL

1. Function SW and Front Jack Circuit Boards
◆ Components to remove first
1) Front Panel (Item 2-3)

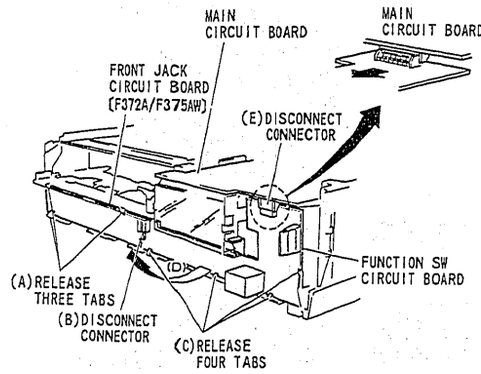


Fig. 3-1

2. Shuttle Circuit Board
(VT-F372A/F375AW ONLY)
◆ Components to remove first
1) Front Panel (Item 2-3)

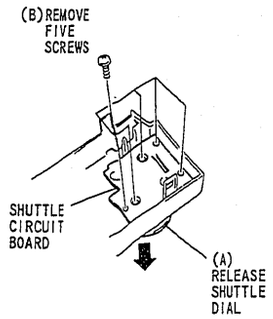


Fig. 3-2

3. Main Circuit Board
◆ Components to remove first
1) Function SW and Front Jack circuit boards (Item 3-1)

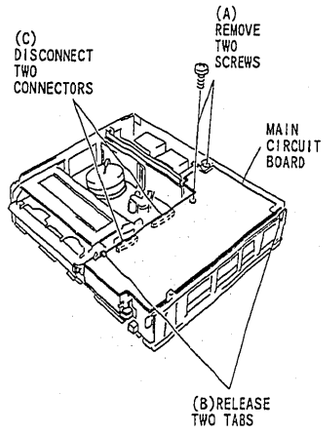


Fig. 3-3

4. Luminance/Chroma, Servo and Audio Circuit Boards
◆ Components to remove first
1) Main circuit board (Item 3-3)

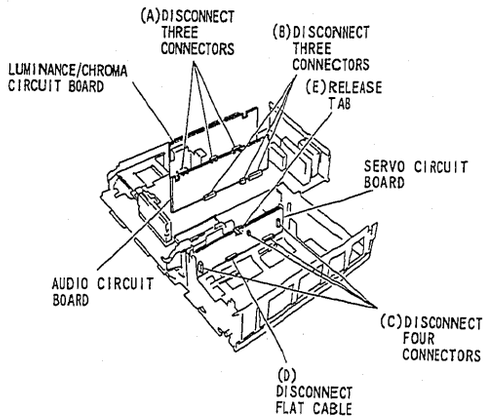


Fig. 3-4

5. Power Supply Circuit Board
6. Pre-Amp/Head SW Circuit Board

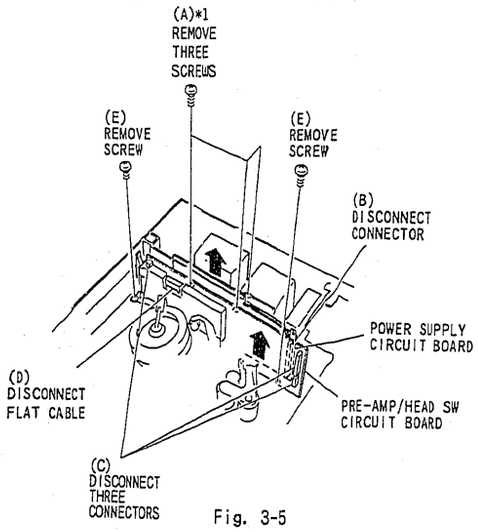


Fig. 3-5

* 1 Caution
o With the VT-F370A/F371A/F372A, tighten the power transformer to the frame with screws.
o With the VT-F375AW, attach the power transformer to the transformer holder and then tighten it to the frame with screws.

7. Sensor Circuit Board

◆ Components to remove first

1) Centre Pulley/FL Relay Gear (B) (Item 6-16)
2) Roller Plate/Mode Gear (Item 6-18)

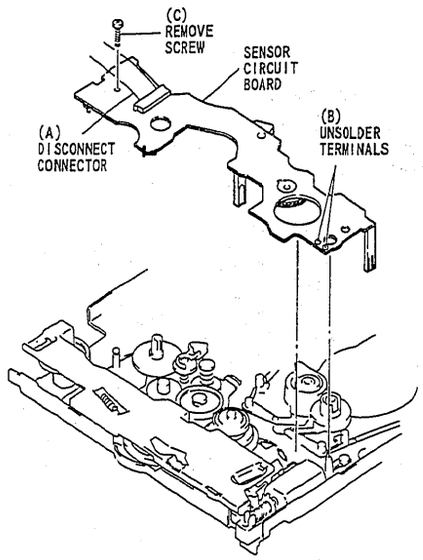
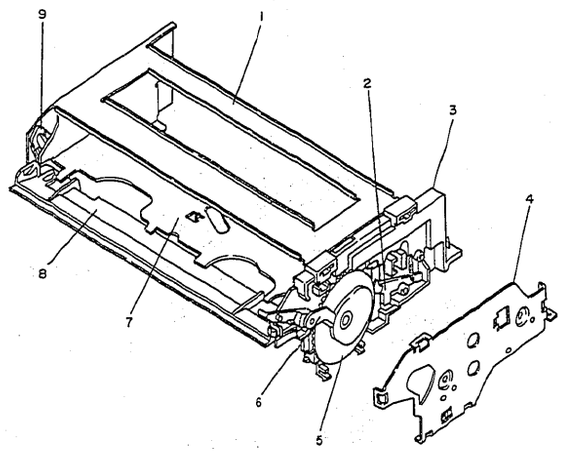


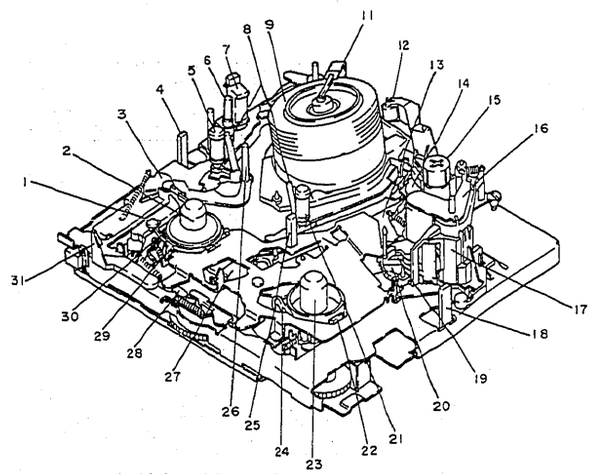
Fig. 3-6

4. IDENTIFICATIONS AND LOCATIONS OF MAIN MECHANICAL COMPONENTS



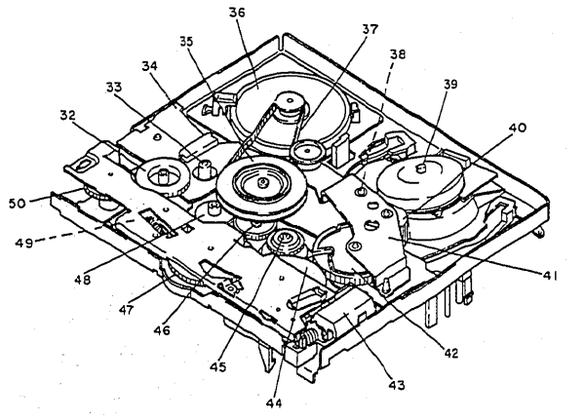
1. Chassis Holder
2. Switch Arm
3. Side Chassis
4. Gear Bracket
5. FL Gear
6. Door Arm
7. Cassette Holder
8. Front Holder
9. FL Drive Arm

Fig. 4-1 Cassette Loading Mechanism



1. Tension Drive Arm
2. Supply Reel Disk
3. Tension Arm
4. Supply End Sensor
5. Supply Guide Roller
6. Supply Guide Pole
7. Full Erase (FE) Head
8. Inclined Guides
9. Cylinder Motor Assembly
10. ———
11. Static Discharge Brush
12. Head Cleaning Arm Assembly
13. Fine Slow Brake Arm
14. Audio/Control (A/C) Head
15. Capstan Shaft Holder
16. Pressure Roller Assembly
17. Cassette Lid Opener
18. Take-up End Sensor
19. Middle Pole
20. Pressure Roller Drive Gear
21. Take-up Guide Roller
22. Take-up Sub Brake
23. Take-up Reel Disk
24. Take-up Main Brake
25. End LED
26. Tension Pole
27. Torque Change Arm
28. Supply Main Brake
29. Supply Sub Brake
30. Tension Band Assembly
31. Safety Arm

Fig. 4-2 Top View of Mechanism



32. FL Relay Gear (B)
33. FL Relay Gear (A)
34. Sensor Circuit Board
35. Centre Pulley
36. Capstan Motor Assembly
37. Drive Belt
38. Take-up Loading Gear
39. Cylinder Motor Assembly
40. Supply Loading Gear
41. Roller Plate
42. Mode Gear
43. Loading Motor
44. Cam Gear (A)
45. Reel Gear (L)
46. Reel Drive Idler
47. Cam Gear (B)
48. Reel Gear (R)
49. Latch Arm
50. FL Relay Gear (C)

Fig. 4-3 Bottom View of Mechanism

Be sure to remove cases, etc. before servicing the mechanism and replacing components, otherwise, the cases, etc. could be damaged.
(Procedure of disassembly)
Remove the parts in the order of letters (A,B,C ···) shown in the illustrations.
(Procedure of reinstallation)
Reinstall the parts by the reverse procedure to removal when no special cautions are given.

5. CASSETTE LOADING MECHANISM REMOVAL

1. Cassette Loading Mechanism

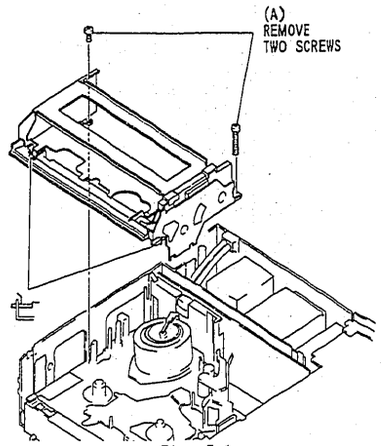


Fig. 5-1

2. Side Gear Bracket, Chassis Holder, FL Drive Arm, Cassette Holder Assembly and Front Holder

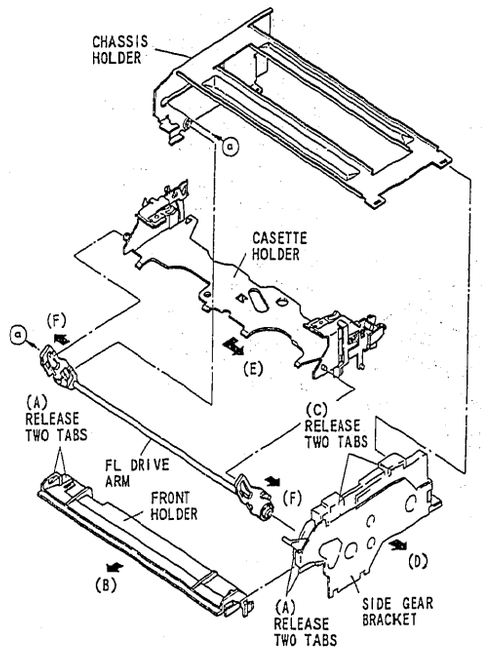


Fig. 5-2

◆ Cautions when reinstalling
1) Check the insertions of 6 bosses.

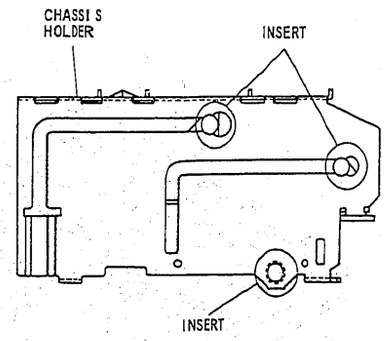


Fig. 5-3

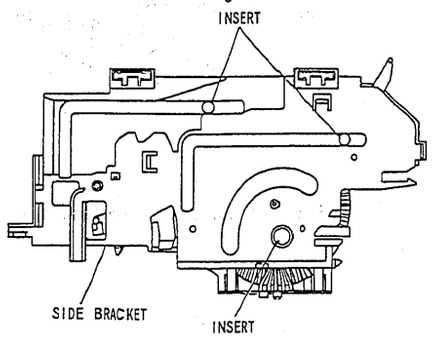


Fig. 5-4

3. Gear Bracket, Door Arm, FL Gears (A), (B) and Switch Arm

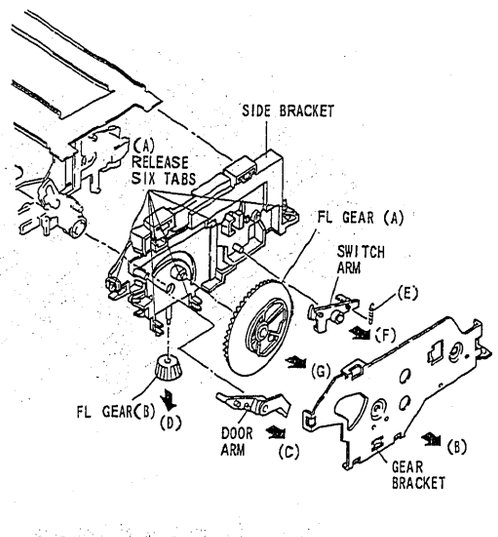


Fig. 5-5

◆ Cautions when reinstalling
1) When reinstalling FL gear (A), align the hole in FL gear (A) and the hole in the side bracket.

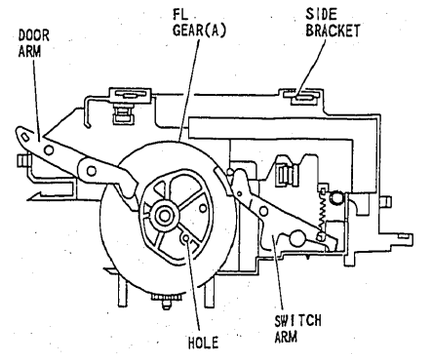


Fig. 5-6

6. MAIN MECHANICAL COMPONENTS REMOVAL

1. FE (Full Erase) Head

◆ Caution when reinstalling
1) Keep the surface of the FE head and supply guide pole which is in contact with the tape clean.

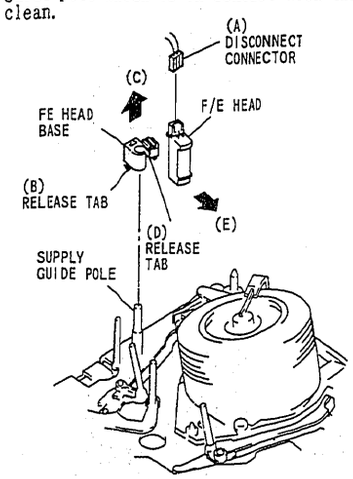


Fig. 6-1

2. A/C (Audio/Control) Head

◆ Cautions when reinstalling
1) Hook the bottom of the spring under the head base to the chassis and the top to the stopper of the head base.
2) Keep the surface of the A/C head which is in contact with the tape clean.

◆ Adjustments after reinstalling
1) A/C (Audio/Control) Head Adjustment
2) X-Value Adjustment
3) Audio Bias Level Adjustment

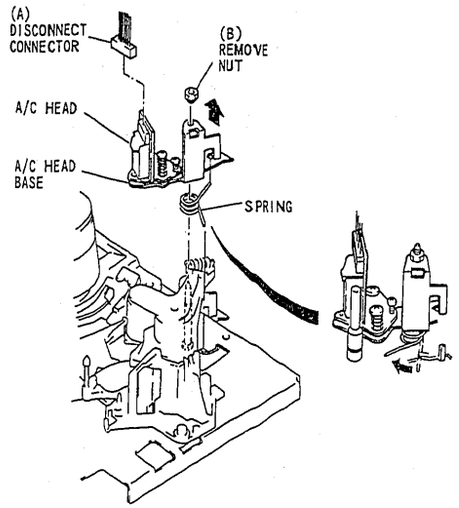


Fig. 6-2

3. Upper Cylinder (Video Heads) and Head Cleaning Bracket Assembly

◆ Cautions during work
1) Pull out the upper cylinder vertically to the cylinder attachment direction.
2) Do not touch video head tips.

◆ Cautions when reinstalling
1) Put the hole in the upper cylinder onto the pole of the lower cylinder.
2) Tighten the two upper cylinder retaining screws alternately.

◆ Adjustment after reinstalling
1) Adjustment after replacing the cylinder (video heads).
2) Head Switching Point Adjustment.

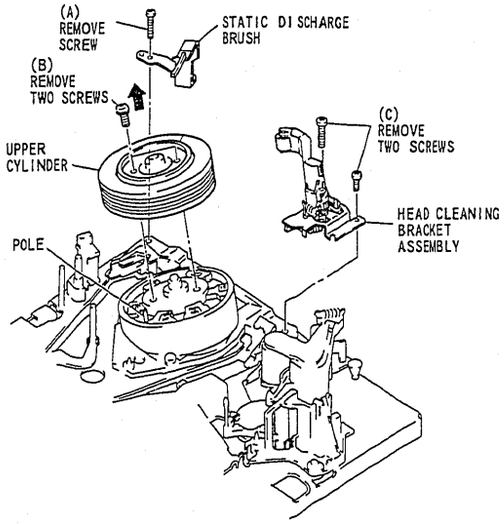


Fig. 6-3

4. Cylinder Motor Assembly

◆ Cautions during work
1) Place the side of the unit down for working.
2) Do not touch video head tips.

◆ Adjustment after reinstalling
1) Adjustment after replacing the cylinder (video heads).

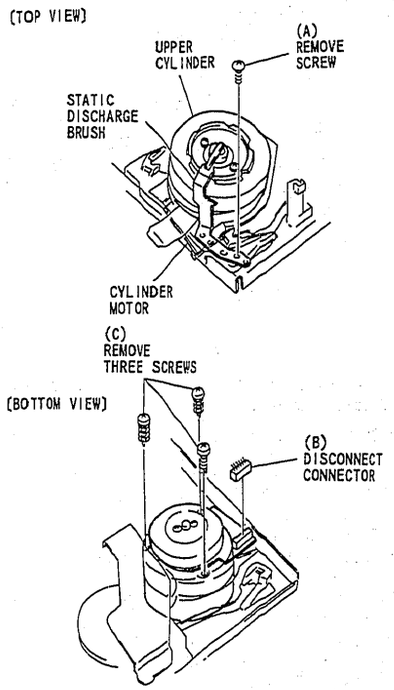


Fig. 6-4

5. Capstan Motor Assembly

◆ Components to remove previously
1) Remove the drive belt.

◆ Caution when reinstalling
1) Keep the surface of the capstan shaft which is in contact with the tape clean.

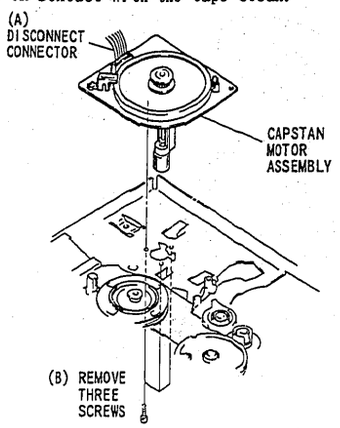


Fig. 6-5

6. Tension Band/ Tension Arm/ Tension Drive Arm

◆ Caution when reinstalling
1) Keep the surface of the tension pole which is in contact with the tape clean.
2) Insert the boss of this arm into the groove in cam gear (A). (See Fig. 6-7)

◆ Adjustments after reinstalling
1) Tension Pole Position and Tension Adjustment

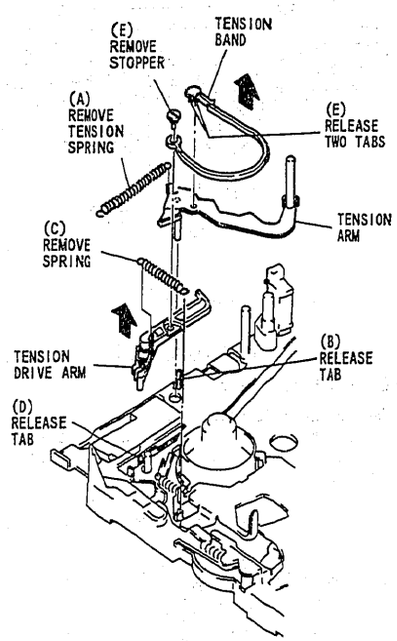


Fig. 6-6

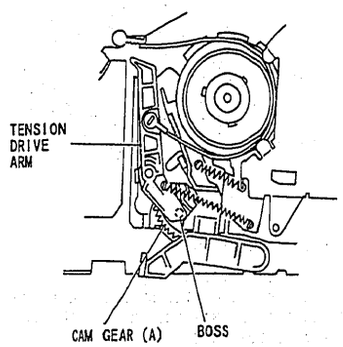


Fig. 6-7

7. Safety Arm

◆ Components to remove previously
1) Tension Band/Tension Arm/Tension Drive Arm (Item 6-6)

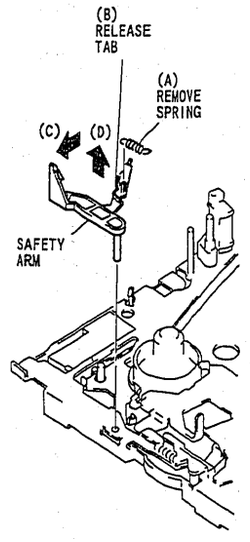


Fig. 6-8

8. Upper Plate, Torque Change Arm, Supply/Take-up Main Brakes
Note: Refer to item 23 on page 2-14 for the procedure to install the torque arm.

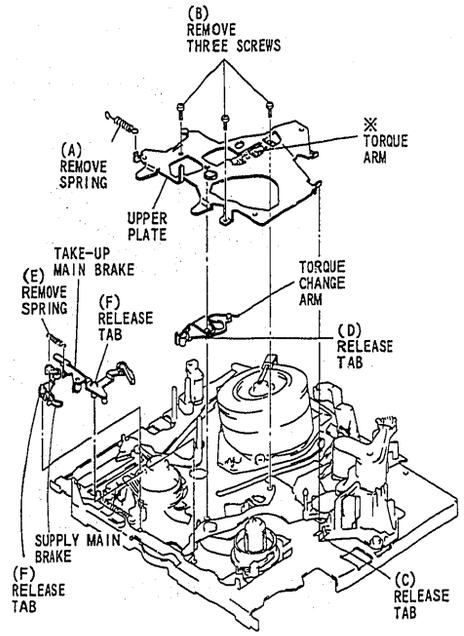


Fig. 6-9

9. Supply/Take-up Reel Disks, Supply/Take-up Sub Brakes

◆ Components to remove previously
1) Upper Plate, Supply/Take-up Main Brakes (Item 6-8)
2) Tension Arm/Tension Band Assembly (Item 6-6)

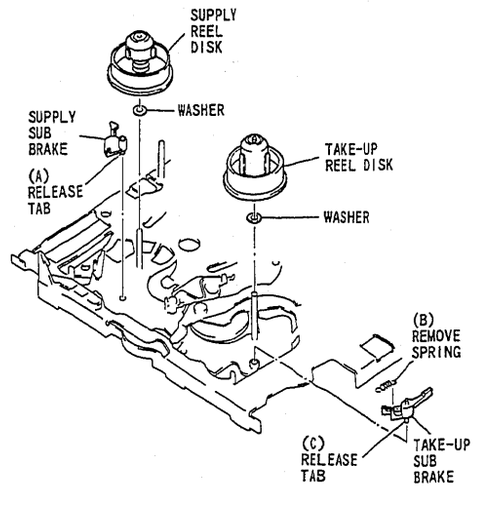


Fig. 6-10

10. Pressure Roller Assembly

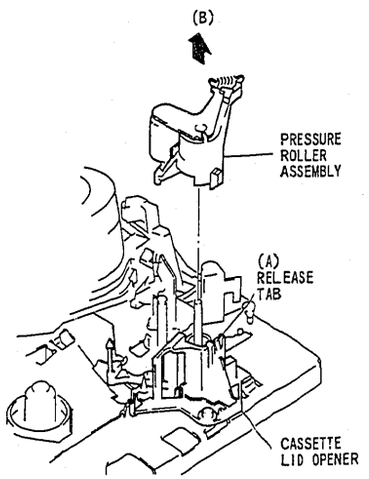


Fig. 6-11

11. Pressure Roller Cam Gear, Cassette Lid Opener and Middle Pole

◆ Components to remove previously
1) Pressure Roller Assembly (Item 6-10)

◆ Caution when reinstalling
1) Keep the surface of the middle pole which is in contact with the tape clean.
2) Hook the spring between the middle pole and chassis.
3) Align mark (O) on the pressure roller cam gear and mark (△) on the pressure roller drive gear. (See Fig. 6-15)

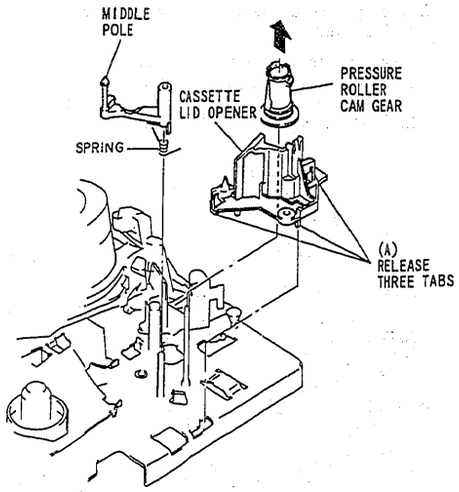


Fig. 6-12

12. Pressure Roller Drive Gear

◆ Components to remove previously
1) Upper Plate (Item 6-8)
2) Pressure Roller Assembly (Item 6-10)
3) Pressure Roller Cam Gear, Cassette Lid Opener and Middle Pole (Item 6-11)

◆ Caution when reinstalling
1) Align hole (A) in the pressure roller drive gear and the hole in the chassis. Also align the markings on the pressure roller drive gear and arm.

◆ Caution when reinstalling
1) Check that the boss of the pressure roller drive arm is securely inserted into the groove in cam gear (B). (See Fig. 6-15)
2) Align hole (A) in the pressure roller drive arm and the hole in the chassis. (See Fig. 6-15)

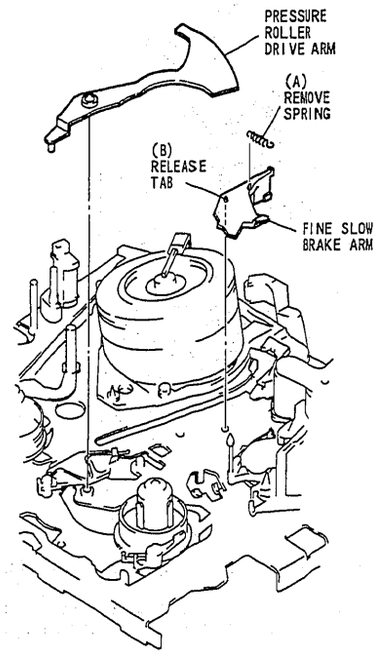


Fig. 6-14

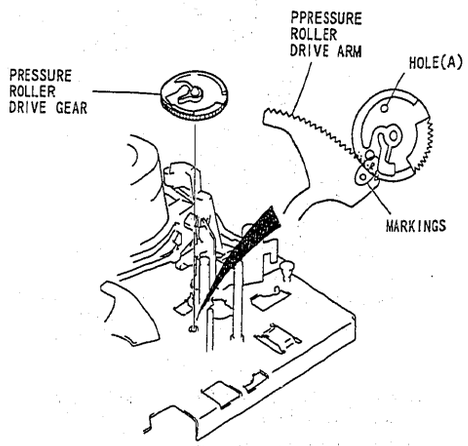


Fig. 6-13

13. Pressure Roller Drive Arm and Fine Slow Brake Arm

◆ Components to remove previously
1) Head Cleaning Bracket Assembly (Item 6-3)
2) Upper Plate (Item 6-8)

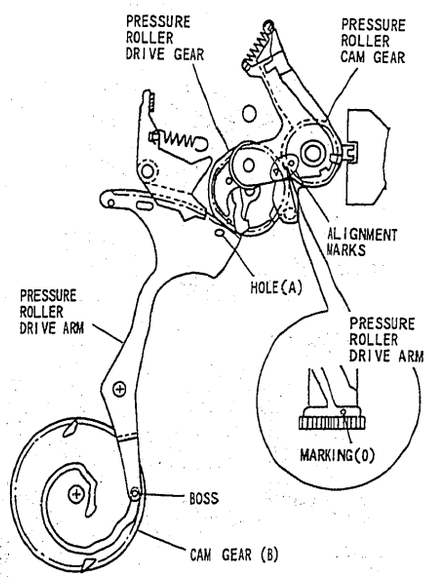


Fig. 6-15

14. Supply/Take-up Guide Rollers

◆ Caution when reinstalling
1) Keep the surface of the guide roller which is in contact with the tape clean.

◆ Adjustments after reinstalling
1) Guide Roller Height Adjustment

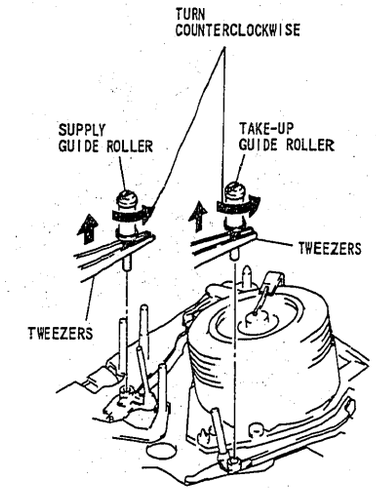


Fig. 6-16

15. Cylinder Motor Base

◆ Components to remove previously
1) Head Cleaning Bracket Assembly (Item 6-3)
2) Cylinder Motor Assembly (Item 6-4)

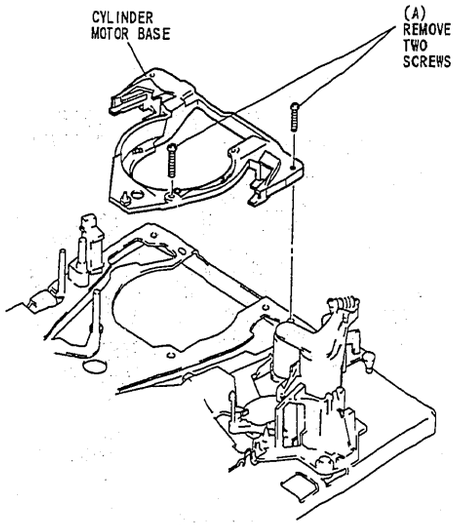


Fig. 6-17

16. Centre Pulley, FL Relay Gear (B)

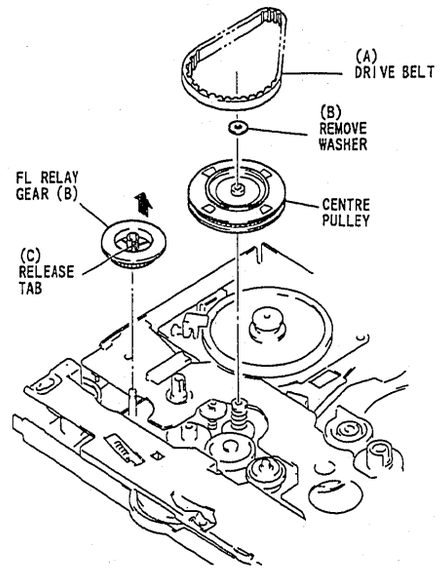


Fig. 6-18

17. Reel Drive Idler, Reel Gears -(L)/(R)

◆ Components to remove previously
1) Centre Pulley (Item 10-16)

◆ Caution when reinstalling
1) Install the spring between the idler and washer.

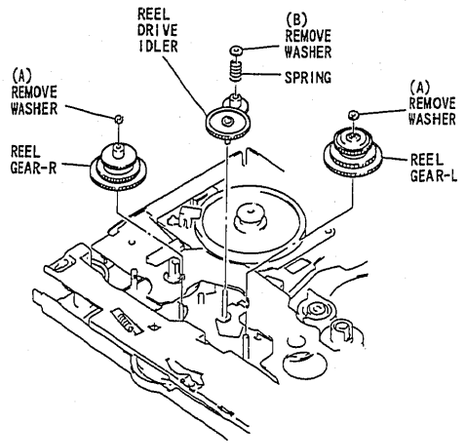


Fig. 6-19

18. Roller Plate, Mode Gear

◆ Caution when reinstalling
1) Align mark (G) on cam gear-A and mark (F) on the mode gear. (See Fig. 6-23)
2) Align the arrow on the sensor P.C.B and arrow (No.1) on the mechanism state switch. (See Fig. 6-23)
3) With the above conditions, align mark (B) on the mechanism state switch and mark (C) on the mode gear. (See Fig. 6-23)

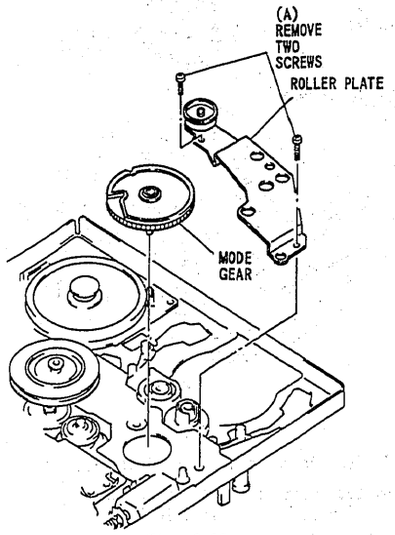


Fig. 6-20

19. Gear Plate, Relay Gear, Wheel Gear, Take-up Brake Sub Arm, Latch Arm, Relay Gear -(C), Cam Gears (A)/(B)

◆ Caution when reinstalling
1) Align hole (A) in the cam gear-(A) and the hole in the chassis.
Also align mark (G) on the cam gear-(A) and mark (F) on the mode gear. (See Fig.6-23)
2) Check that the bosses of the supply sub brake and tension drive arm are inserted into the specified positions. (See Fig. 6-22)
3) Align mark (I) in the cam gear-(B) and mark (H) on the cam gear-(A). (See Fig. 6-23)
4) Check that the boss of the pressure roller drive arm is inserted into the groove in the cam gear-(B). (See Fig. 6-22)

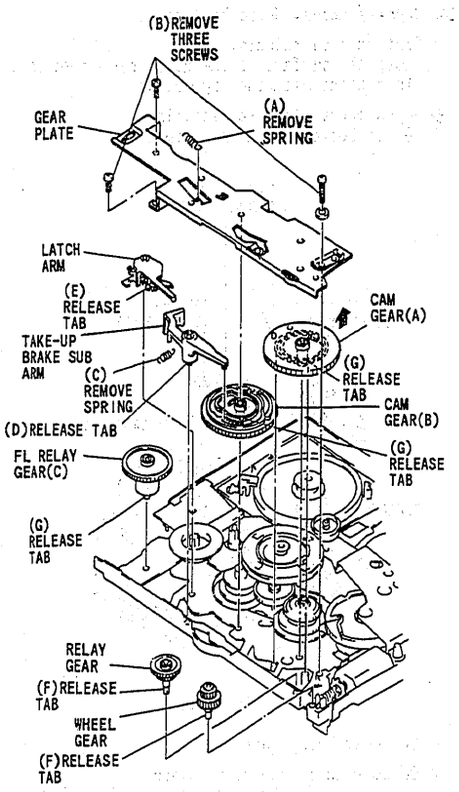


Fig. 6-21

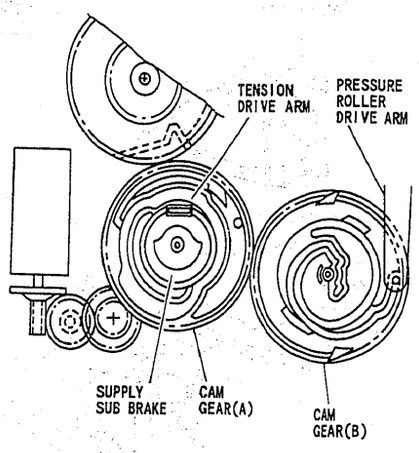


Fig. 6-22

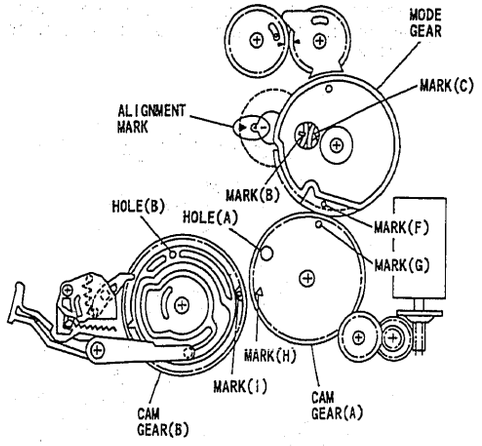


Fig. 6-23

20. Loading Motor Assembly

◆ Components to remove previously
1) FL Relay Gear (B) and Centre Pulley (Item 6-16)
2) Roller Plate, Mode Gear (Item 6-18)
3) Gear Plate, Relay Gear and Wheel Gear (Item 6-19)

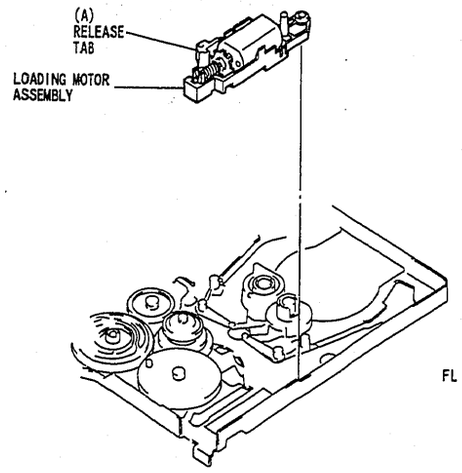


Fig. 6-24

21. FL Relay Gear -(A), FL Change Arm, FL Change Gear

◆ Components to remove previously
1) Roller Plate, Mode Gear (Item 6-18)
2) Centre Pulley, FL Relay Gear (B) (Item 6-16)
3) Sensor P.C.B (Item 3-6)

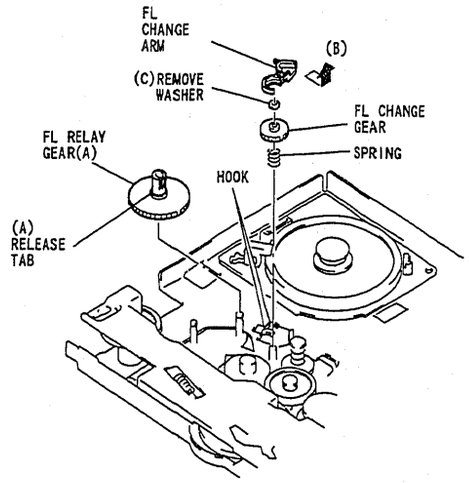


Fig. 6-25

◆ Cautions when reinstalling
Install the FL change arm by the following procedure. Do not narrow the "U"-shaped section of the arm when installing it. (See Fig. 6-26)
1) Place the arm sideways and pass it through the hole in the chassis.
2) Turn the arm to the front (to the right).
3) Push up the whole arm, taking care that section (a) of the arm does not hit the chassis and insert the bosses of the arm into the holes in the axis supports in the chassis.
4) After installing the arm, check that the arm moves smoothly.

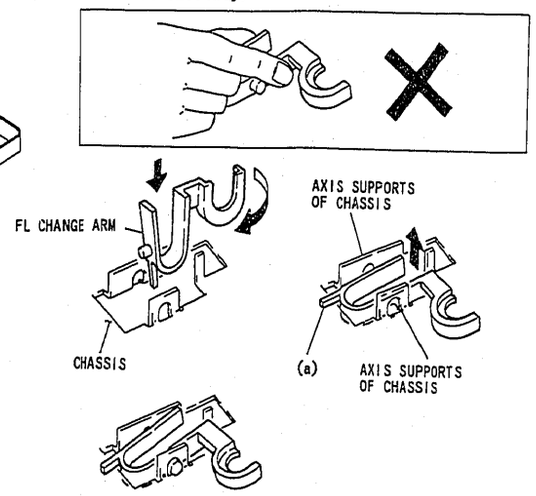


Fig. 6-26

22. Supply/Take-up Loading Arms

◆ Components to remove previously
1) Roller Plate, Mode Gear (Item 6-18)
2) Centre Pulley, FL Relay Gear (B) (Item 6-16)
3) Sensor P.C.B (Item 3-6)

◆ Caution when installation
1) Align the markings on each gear. (See Fig. 6-28)

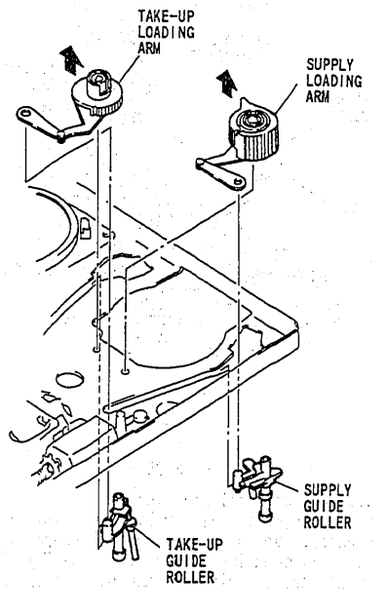


Fig. 6-27

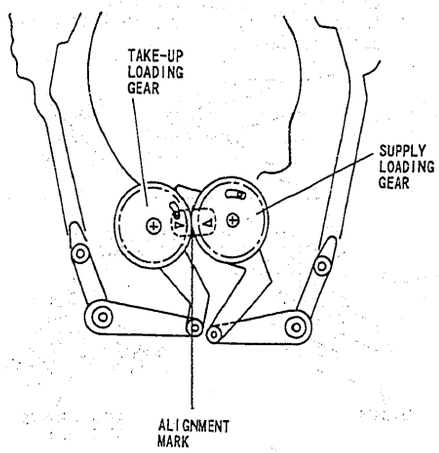


Fig. 6-28

23. Torque Arm Installation Procedure

1) Insert the torque arm as shown in the figure.
2) Fit the torque arm to the upper plate as shown in Fig. 6-29.
3) Install the torque arm into the upper plate while turning the arm in the direction of the arrow.

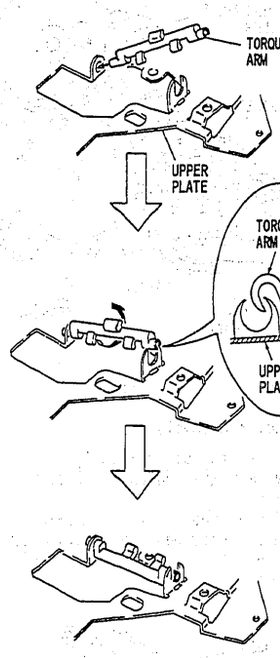


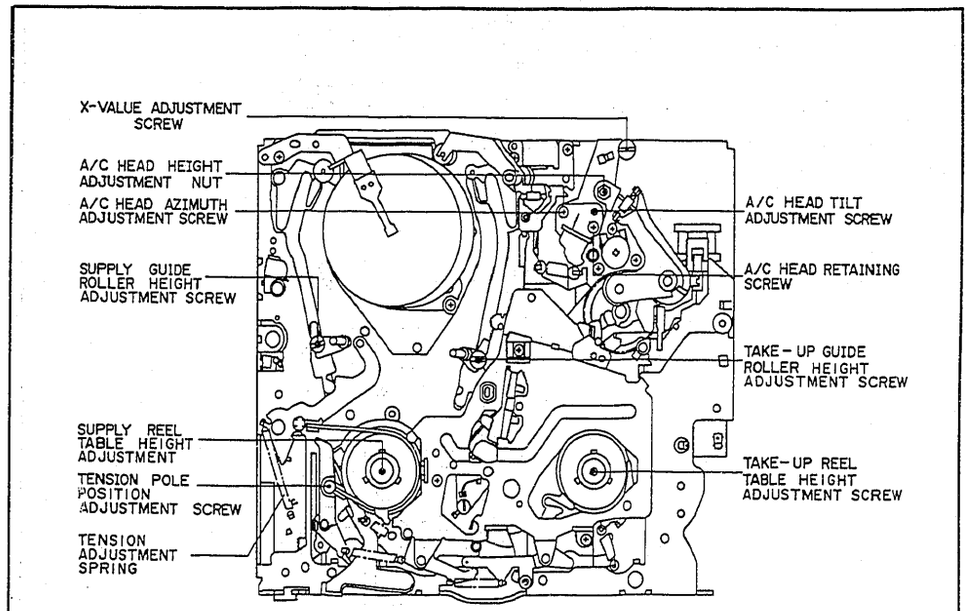
Fig. 6-29

MECHANISM ADJUSTMENT

JIGS AND TAPES FOR ADJUSTMENT

1. Back Tension Meter Parts No.7099004	2. Alignment Tape - MH-1 - Parts No. 7099046 - 30HMP2-1 - Parts No. 7099089 - 24HMASF-2 - Parts No. 7099153	3. Master Plane Parts No.7099279
4. Torque Gauge Parts No.7099039	5. Torque Gauge Adaptor Parts No.7099035	6. Reel Disk Height Jig Parts No.7099038
7. 1.5mm Hexagonal Wrench 0.9mm Hexagonal Wrench		

ADJUSTMENT PARTS LOCATIONS


X-VALUE ADJUSTMENT SCREW
A/C HEAD HEIGHT ADJUSTMENT NUT
A/C HEAD AZIMUTH ADJUSTMENT SCREW
SUPPLY GUIDE ROLLER HEIGHT ADJUSTMENT SCREW
SUPPLY REEL TABLE HEIGHT ADJUSTMENT
TENSION POLE POSITION ADJUSTMENT SCREW
TENSION ADJUSTMENT SPRING
A/C HEAD TILT ADJUSTMENT SCREW
A/C HEAD RETAINING SCREW
TAKE-UP GUIDE ROLLER HEIGHT ADJUSTMENT SCREW
TAKE-UP REEL TABLE HEIGHT ADJUSTMENT SCREW

Top View of Mechanism

MECHANICAL PARTS ADJUSTMENT

1. Mechanism State Switch Adjustment

Purpose: To detect the mechanism state correctly and prevent malfunctions.

Test equipment/jig	Preparation for Adjustment	State of VCR	Adjustment points
• Blank tape	———	• Eject mode (with the cassette ejected)	• Mechanism state switch • Mode gear

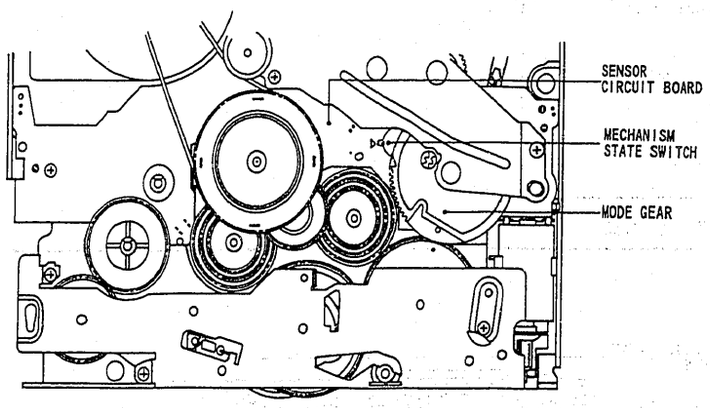
Adjustment procedure

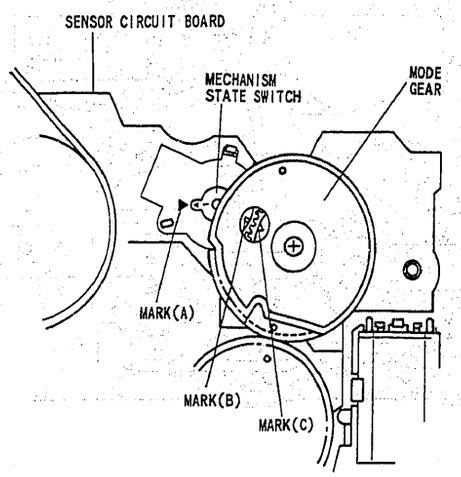
1) Check that arrow (A) on the Sensor P.C.B and the arrow of mechanism state switch indication number 1 are aligned.

2) If the above alignment is not obtained, adjust as follows.
   1. Remove the roller plate and mode gear. (See "MAIN MECHANICAL COMPONENTS REMOVAL" in CHAPTER 2.)
   2. Turn the mechanism state switch through the hole in the Sensor P.C.B to align arrow (A) on the Sensor P.C.B and the arrow of mechanism state switch indication number 1.
   3. Reinstall the mode gear so that mark (B) on the mechanism state switch and mark (C) on the mode gear are aligned.

3) Load a blank tape and perform various operations to check that loading and unloading are performed correctly.

Adjustment diagram





TAPE TRANSPORT SYSTEM PARTS ADJUSTMENT

The tape transport system is the path from the supply reel disk passing through the video heads to the take-up reel disk. The transport system parts, especially the parts which directly come into contact with a tape, should be kept clean without scratches, dust, oil, etc.
The tape transport system has been adjusted before the unit is shipped from the factory. Therefore, when parts in the transport system are replaced, the transport system is stabilized by only adjusting the new parts correctly.

1. Reel Disk Height Adjustment

Purpose: To set the reels of the cassette to the specified height, thus determining the height of tape.

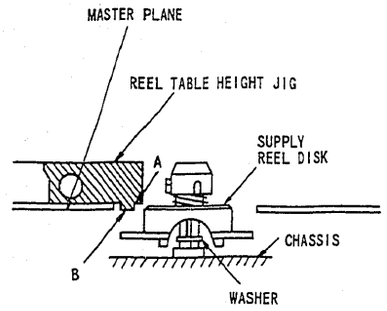
Test equipment/jig	Preparation for Adjustment	State of VCR	Adjustment points
• Master plane (Parts No.7099279) • Reel disk height jig (Parts No.7099038)	1) Remove the cassette loading mechanism. 2) Mount the master plane and place the reel disk height jig on it.	———	• Spacers in the supply and take-up reel disks

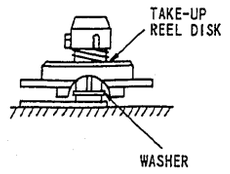
Adjustment procedure

1) Check that the reel disk is between sections A and B of the reel disk height jig..
2) If the disk is not between sections A and B of the jig, replace the spacer (0.5mm thick) in the reel disk or adjust them.

[Caution]
When the tension arm and tension band are removed, adjust the tension pole position and tension after reinstalling them.

Adjustment diagram





2. Tension Pole Position and Tension Adjustment

Purpose: To make the tension of tape constant so that the contact between the video heads and tape is stabilized.

Test equipment/jig	Preparation for Adjustment	State of VCR	Adjustment points
Position adjustment ———	———	1) Remove the top cover. 2) Set the VCR to the loading state without inserting a cassette. (See page 4-12)	Position adjustment: Tension band holder
Tension adjustment ・Back Tension Meter (Parts No.7099004)	———	Tension adjustment 3) Play the tension cassette.	Tension adjustment: Tension spring hooking position

Adjustment procedure

- Position Adjustment -

1) Hook the tension spring to position (B).
2) Insert a flat bladed screwdriver into the groove for the tension position adjustment and set the clearance between the tesion arm and chassis to 0 to -1.0mm.
3) After adjustment is completed, perform loading without inserting a cassette and recheck the tension pole position.

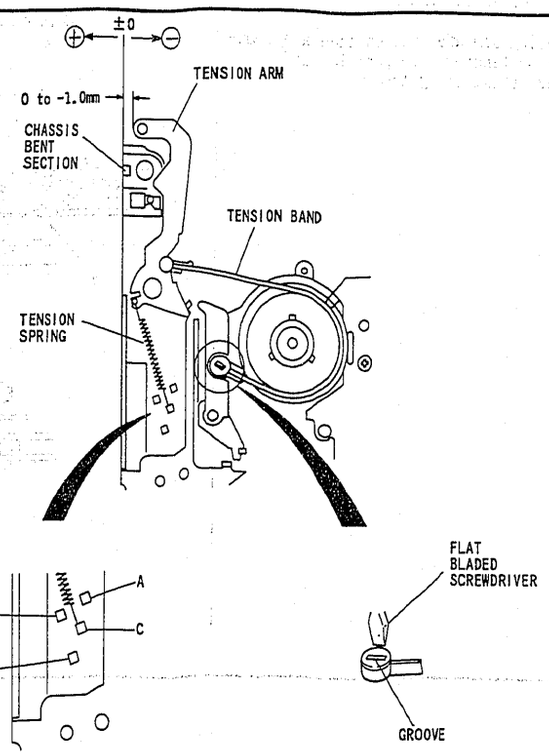
- Tension Adjustment -

1) Hook the tension spring to position (B).
* Changing the tension arm position with this adjustment varies the back-tension torque value. Check the tension arm position without loading a tape and then set the back-tension torque to the following values.

2) When the tension arm is positioned -1 mm from the chassis bent section:
   Reading of Back Tension Meter: 28 to 36 g-cm
3) When the tension arm is ±0 mm from the chassis bent section:
   Reading of Back Tension Meter: 25 to 32 g-cm
4) If the reading is higher than the reference, move the spring to position (A).
   If the reading is lower than the reference, move the spring to position (C).

Caution: When the tension position is changed greatly (more than 6 g-cm), recheck the tension pole position. If it is drifted, readjust the tension pole position and tension.

Adjustment diagram



3. Guide Roller Height Adjustment

Purpose: To regulate the height of tape so that the bottom of tape runs along the tape guide line on the cylinder.

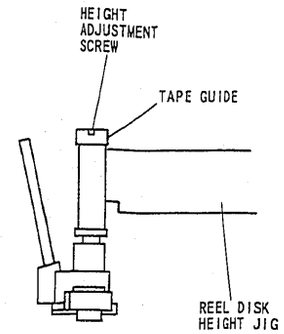
Coarse Adjustment

Test equipment/jig	Preparation for Adjustment	State of VCR	Adjustment points
・Master plane (Parts No.7099279) ・Reel disk height jig (Parts No.7099038)	1) Remove the cassette loading mechanism. 2) Mount the master plane and place the reel disk height jig on it.	———	Height adjustment screws on the supply and take-up guide rollers

Adjustment procedure

1) Align the bottom of the guide roller's upper flange and the top of the reel disk height jig.
2) Perform the precise adjustment continuously.

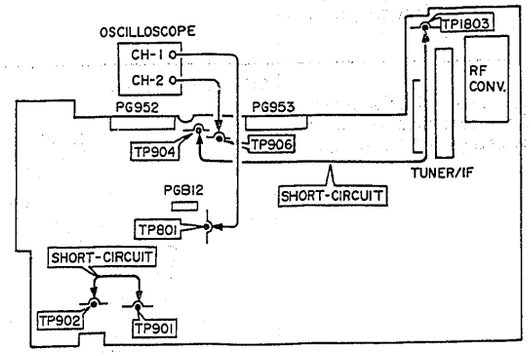
Adjustment diagram



Precise Adjustment

Test equipment/jig	Preparation for Adjustment	State of VCR	Adjustment points
・Oscilloscope	・CH-1: TP801 (PB FM) ・CH-2: TP906 (SW30Hz)	・Play alignment tape (Color bars section)	・Guide roller height adjustment screws
・Alignment tape (30HMP2-1) (Parts No.7099089)			

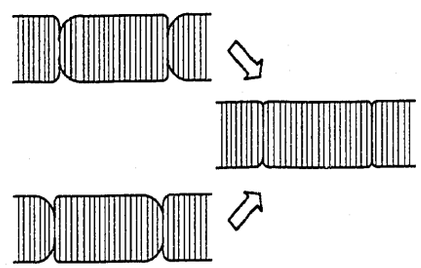
Connection diagram



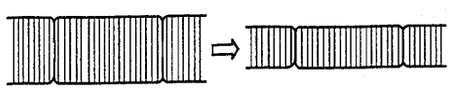
Adjustment procedure

1) Tracking control (playback) : Center position (when this adjustment is performed after the cylinder has been replaced, set the tracking control so that the FM output is maximum.)
2) Short-circuit between TP904 and TP1803 on the main circuit board.
   Short-circuit between TP901 and TP902 on the main circuit board.
   By this, the digital display enters the test mode, and "◁◁ ▷▷" is displayed.
3) Height adjustment screw : Flatten the FM envelope.
4) Press the tracking control up and down buttons.
5) Check that the FM drops at the start and end of FM envelope are uniform.
6) Tighten the guide roller retaining screw.
7) Remove the short circuits.

Waveforms



Turn the guide roller height adjustment screw slightly to flatten the waveform.



Tracking control at center

Press the tracking control buttons.

4. Audio / Control (A/C) Head Adjustment

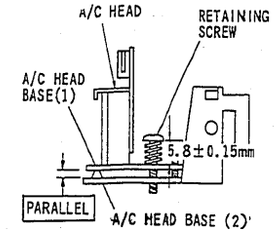
Purpose: To keep the contact between the tape and head even so the specified track is recorded and played back.

Coarse Adjustment

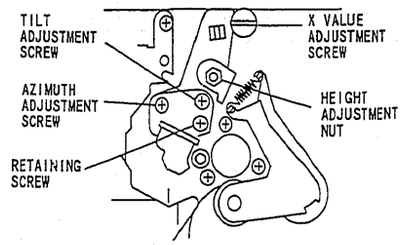
Test equipment/jig	Preparation for Adjustment	State of VCR	Adjustment points
・Blank tape	———	・Run the blank tape.	・A/C head retaining screw ・Azimuth adjustment screw ・Height adjustment nut ・Tilt adjustment screw

Adjustment procedure/adjustment diagrams

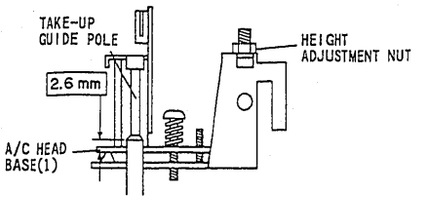
1) A/C head retaining screw: Check that the spring section of the A/C head retaining screw protrudes 5.8 ± 0.15mm over the top of head base (1).



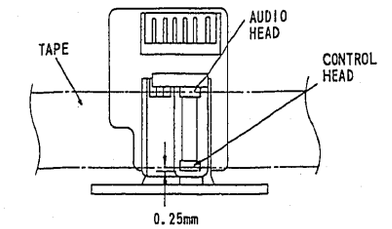
2) Tilt adjustment hexagonal screw, azimuth adjustment screw: Make head bases (1) and (2) parallel.



3) Height adjustment nut: Adjust the height of A/C head base (1) so that its top surface is approx. 2.6 mm lower than the bottom flange of the take-up guide pole.



4) Load a blank tape and set the VCR to the play mode.
5) Check that there is no conspicuous curling and riding over around the A/C head. If there is conspicuous curling or riding over, readjust the tilt adjustment hexagonal screw, azimuth adjustment screw and height adjustment nut. When the bottom edge of tape is 0.25 mm from the bottom edge of the control head's core, the height of A/C head is ideal.



6) Perform the precise adjustment continuously.

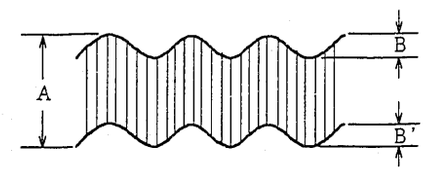
Precise Adjustment

Test equipment/jig	Preparation for Adjustment	State of VCR	Adjustment points
・Oscilloscope	・AUDIO OUT Jack	・Play alignment tape (Stairsteps section)	・Azimuth adjustment screw ・Height adjustment nut ・Tilt adjustment screw
・Alignment tape (Parts No. 7099046) (Parts No. 7099089)	———		

Adjustment procedure

1) Adjust the azimuth adjustment screw, height adjustment nut and tilt adjustment screw slightly and alternately: Make the audio output maximum and flat (minimum fluctuations).

Waveform diagram



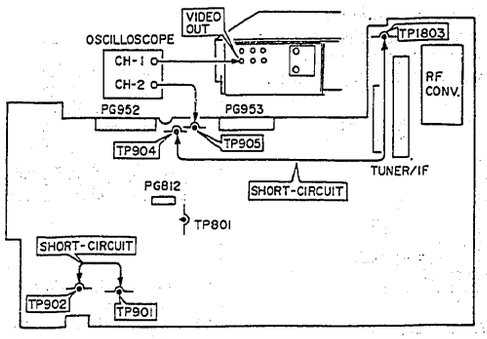
A: Maximum BB': Minimum

5. X-Value Adjustment

Purpose: To obtain compatibility with other VCRs.

Test equipment/jig	Preparation for Adjustment	State of VCR	Adjustment points
• Oscilloscope	• CH-1: VIDEO OUTPUT jack • CH-2: TP905 (CTL PULSE)	• Play alignment tape (Stairsteps section if MH-1 alignment tape is used.)	• X-value adjustment screw
• Alignment tape (parts No. 7099046) (Parts No. 7099089)	——		

Connection diagram

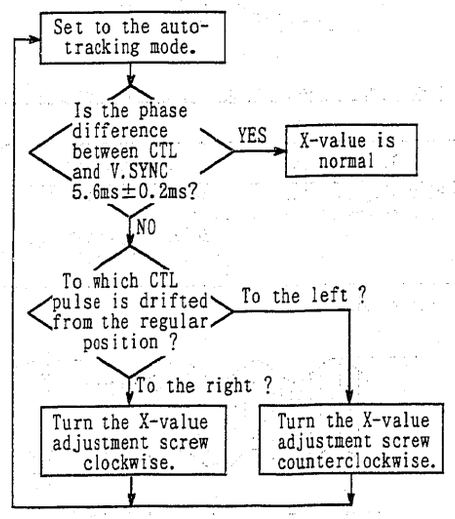


Adjustment procedure

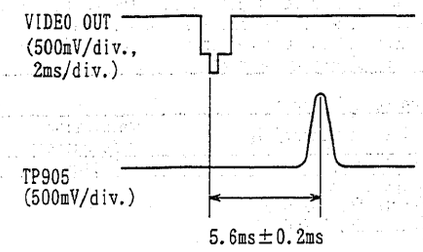
Adjust so that the phase difference between the CTL pulse (positive pulse) and V.SYNC on the video signal is 5.6ms±0.2ms when the autotracking mode.

◆ The autotracking function operate Press the EJECT button to remove the alignment tape and re-insert it.

Short-circuit between TP904 and TP1803 on the main circuit board.
Short-circuit between TP901 and TP902 on the main circuit board.
By this, the digital display enters the test mode, and "◁◁ ▷▷" is displayed.


Set to the auto-tracking mode.
Is the phase difference between CTL and V.SYNC 5.6ms±0.2ms?
YES
X-value is normal
NO
To which CTL pulse is drifted from the regular position ?
To the left ?
To the right ?
Turn the X-value adjustment screw clockwise.
Turn the X-value adjustment screw counterclockwise.

Waveforms



After the X-value adjustment is completed, remove the short-circuits.

6. Adjustments After Replacing Cylinder (Video Heads)

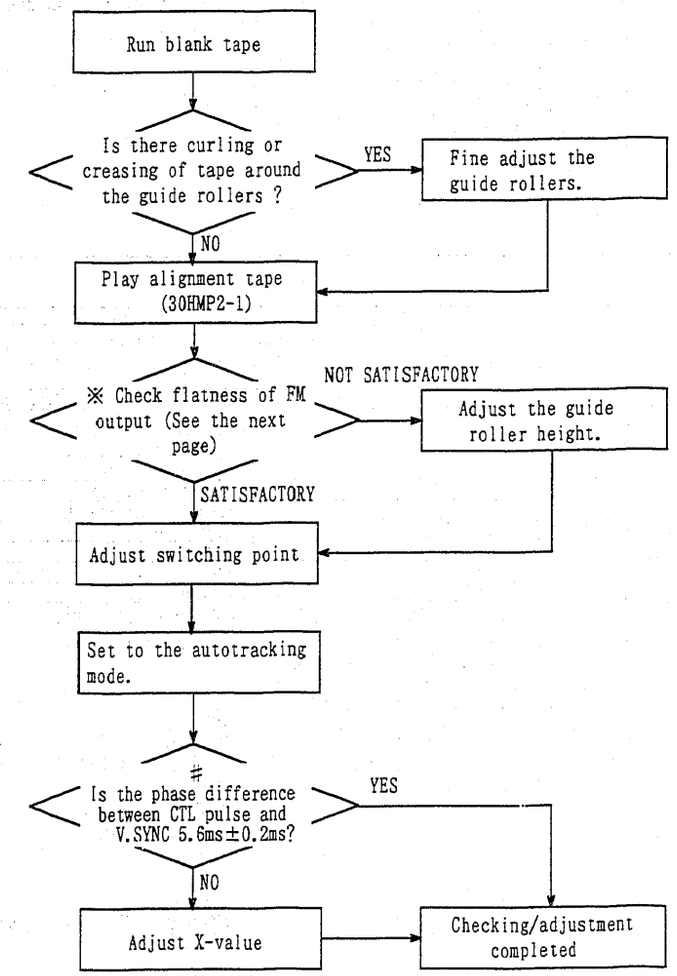
Purpose: To suppress drift in the height relative to the guide roller and to minimize the X-value after replacing the cylinder.

Test equipment/jig	Preparation for Adjustment	State of VCR	Adjustment points
• Oscilloscope	Checking the flatness • CH-1: TP801 (PB FM) • CH-2: TP906 (SW30Hz)	• Run the blank tape	• Guide rollers (precise adjustment on page 3-6) • Head switching point (page 4-3) • X-value (page 3-8)
• Alignment tape (30HMP2-1) (Parts No.7099089)		• Play alignment tape (Stairsteps section)	
• Blank tape			

Checking/adjustment procedure

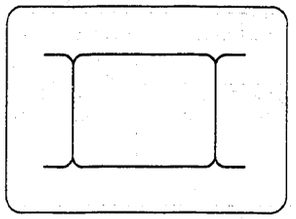
NOTE-1 : Connect test equipment referring to connection diagram on page 3-6 when checking the item marked ※.

NOTE-2 : Connect test equipment referring to connection diagram on page 3-8 when checking the item marked #.

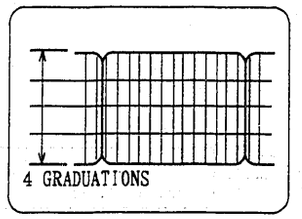

Run blank tape
Is there curling or creasing of tape around the guide rollers ?
YES
Fine adjust the guide rollers.
NO
Play alignment tape (30HMP2-1)
※ Check flatness of FM output (See the next page)
NOT SATISFACTORY
Adjust the guide roller height.
SATISFACTORY
Adjust switching point
Set to the autotracking mode.
Is the phase difference between CTL pulse and V.SYNC 5.6ms±0.2ms?
YES
NO
Adjust X-value
Checking/adjustment completed

Checking procedure of the flatness and fluctuations of FM output and waveform diagrams

1) Set to the autotracking mode.

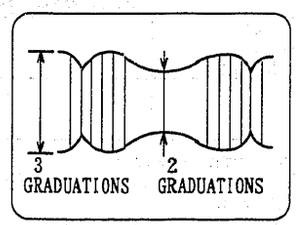


2) Fine tune the voltage level range of the oscilloscope to set the FM output to 4 graduations.



3) Press the tracking control buttons to set the maximum amplitude of the FM output to 3 graduations.

4) Check that the minimum amplitude is more than 2 graduations.



5) Check that the level fluctuations between the maximum and minimum amplitudes are less than 13%.

7. Tension/Torque Checks

Purpose: It is necessary to check the tension, torque and compression force at the tape take-up section and moving section to make the tape running smooth and satisfy the basic performance of the VCR. Check these if the tape running is not smooth or the tape speed is abnormal.

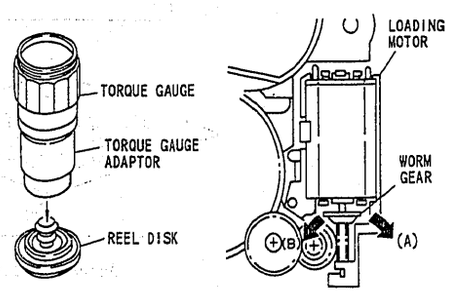
Test equipment/jigs		State of VCR	
• Torque gauge • Torque gauge adaptor		• Set the VCR to each operation mode without inserting a cassette. (See page 3-10)	
Item	VCR operation mode	Measured reel	Measured value
Main brake torque	Stop (Note)	Supply & take-up reels	100 ~ 200 g·cm
Slack removal torque	Unloading	Supply reel	120 ~ 250 g·cm
Fast forward torque	Fast forward	Take-up reel	400 g·cm or more
Rewind torque	Rewind	Supply reel	400 g·cm or more
Take-up torque	Play	Take-up reel	40 ~ 70 g·cm
Back-tension torque	Fast forward/Rewind	Supply/Take-up reel	3 ~ 13 g·cm

Checking method

The values are measured using a torque gauge and torque gauge adaptor with the torque gauge fixed.

Note: Turn the worm gear in the direction of arrow (A) to shift the mechanism state switch indication number to "3". Then turn the worm gear in the direction of arrow (B) so the main brakes are applied to the reel disks.

Adjustment diagram



8. To Set the VCR to the Loading State without Inserting a Cassette

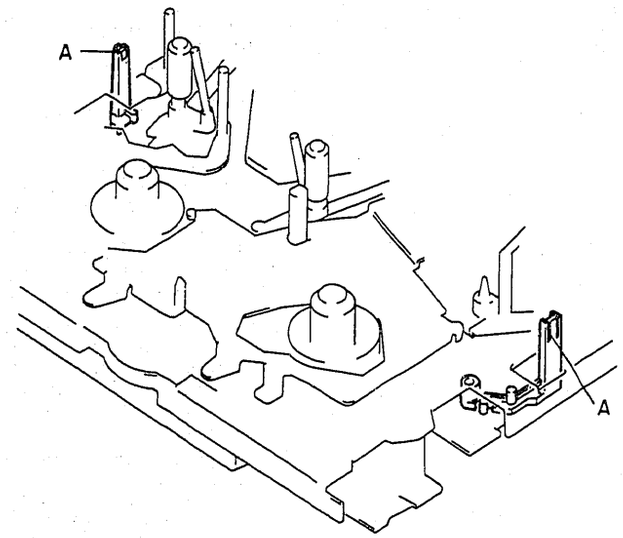
1) Remove the top cover and front panel.
2) Remove the cassette loading mechanism.
3) Unplug the power cord form the AC outlet.
4) Cover the supply and take-up end sensors (sections A in the figure below) with black masking tape, etc. to shut off the light.
5) Plug the power cord into the AC outlet.
6) Turn the VCR on.
The VCR can accept the inputs of each mode in this state. However, the rewind operation cannot be performed for more than a few seconds because the take-up reel disk is in the stop state and reel pulses cannot be detected.

(Cautions)

Always return the VCR to the original state in the following order after the above operations have been performed.

1) Remove the masking tape, etc. from the supply and take-up end sensors.
2) Unplug the power cord from the AC outlet to reset the main microprocessor.

Adjustment diagram



MAINTENANCE/INSPECTION PROCEDURE

1. Required Maintenance

The recording density of a VCR is much higher than that of an audio tape recorder. VCR components must be very precise, at tolerances of 1/1000 mm, to ensure compatible with other VCRs. If any of these components are worn or dirty, the symptoms will be the same as if the part is defective. To ensure a good picture, periodic inspection and maintenance, including replacement of worn-out parts and lubrications, is necessary.

2. Scheduled Maintenance

Schedules for maintenance and inspection are not fixed because they are greatly according to the way in which the customer uses the VCR, and the environment in which the VCR is used. But, in general home use, a good picture will be maintained if the inspection and maintenance is done every 1,000 hours. The table below shows the relation between time used and inspection period.

Table 1

Average hours used per day	When inspection is necessary: About 1 year	About 18 months	About 3 years
One hour	▨	▨	▨
Two hours	▨	▨	
Three hours	▨		

3. Check before starting Repairs

The following faults can be remedied by cleaning and oiling. Check the need for lubrication and the conditions of cleanliness in the unit. Check with the customer to find out how often the unit is used. If from that you determine that the unit is ready for inspection and maintenance, check the following parts.

Table 2

Phenomenon	Inspection Location
Poor S/N, no color	Dirt on video head or worn video head
Tape does not run or tape is slack	Dirt on pressure roller, reel belt or flywheel belt
Vertical jitter horizontal jitter	Dirt on video head or in tape transport system
Color beats	Dirt on full-erase head
Low volume or sound distorted	Dirt on audio/control head

4. Tools Needed for Inspection and Maintenance

(1) Head cleaning kit
(2) VCR oil kit
(3) Alcohol
(4) Gauze

Table 3 Locations for Greasing and Oiling using the Kit

Name	Oil or Greasing Location
Sonic Slidas Oil (#1600)	Oil low-speed rotating sections
Molicoat (PG-641)	Lubricate metal or molded sections under light load
Lock paint	Fix adjustment screws

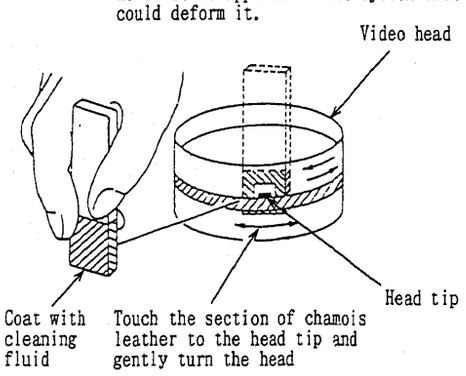
The above oils and greases are in the kit prepared especially for VCR maintenance. Use this kit for lubrication.

5. Maintenance Procedures

5-1 Cleaning

(1) Cleaning video head
First use a cleaning tape. If dirt on head is too stubborn to remove by tape, use the cleaning kit. Moisten the cleaning stick with cleaning fluid at the point indicated. Touch the stick to the head tip and gently turn the head (rotating cylinder) to the right and left. (Do not move the stick vertically and make sure that only the chamois leather on the stick comes into contact with the head. Otherwise, the head may be damaged.) Thoroughly dry the head. Then test run a tape. If cleaning fluid remains on the video head, the tape may be damaged when in comes into contact with the head surface.

(2) Cleaning the tape transport system and drive system, ect.
Wipe with gauze moistened with alcohol.
Notes: 1) The tape transport system is the system which comes into contact with the running tape. The drive system consists of those parts which run the tape.
2) Make sure that during cleaning you do not touch the tape transport system with the tip of a screwdriver and that no force is applied to the system that could deform it.


Video head
Head tip
Coat with cleaning fluid
Touch the section of chamois leather to the head tip and gently turn the head

5-2 Lubrication

(1) Guidelines for lubricating with oil
Use the oiler to apply one or two drop of Sonic Slidas oil. Make sure not to use too much oil because it may spill over or leak out coming into contact with rotating parts and causing slippage or other problems. If too much oil is applied, wipe clean with alcohol.

(2) Periodic oil lubrication
Oil specified locations every 1,000 hours.

5-3 Greasing

(1) Greasing guidelines
Apply grease Molicoat, with a stick or brush. Do not use excess grease. It may come into contact with the tape transport or drive system. Wipe any excess and clean with gauze moistened with alcohol.

(2) Periodic greasing
Grease specified locations every 5,000 hours.

6. Inspection Locations

Phenomenon	Inspection Location	Replacement	
Color beats	Dirt on full erase head		→ ①
Poor S/N, no color	Dirt on video heads	○	→ ②
Vertical jitter	Dirt on video heads Dirt in tape transport system		→ ③
Low volume, sound disordered	Dirt on audio/control head	○	→ ④
Tape does not run. Tape is slack.	Dirt on pressure roller	○	→ ⑤

Note:
If locations marked with "○" do not operate normally after cleaning, they are worn. Replace.
See the EXPLODED VIEWS at the end of this manual as well as the above illustrations for the sections to be lubricated and greased.

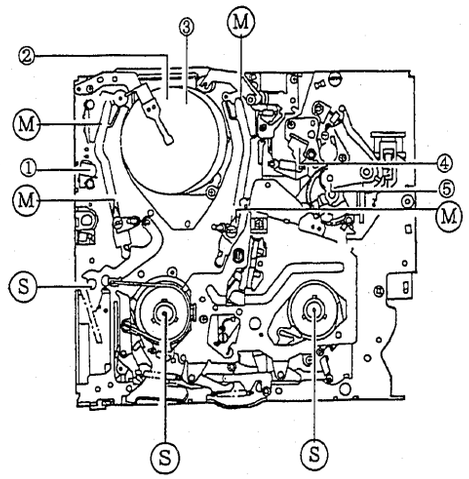


Fig. 1 Top View of Mechanism

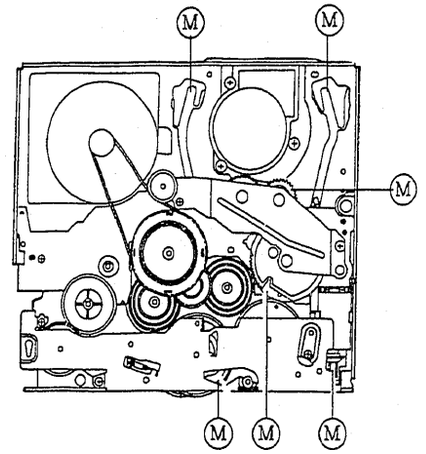


Fig. 2 Bottom View of Mechanism

Ⓢ : Sonic Slidas oil (oil locations)
Ⓜ : Molicoat (grease locations)

CHAPTER 4

ELECTRIC CIRCUIT ADJUSTMENT

Test equipment and tapes necessary for adjustment

1) Dual-trace oscilloscope
2) Color bar generator
3) VTVM
4) DC voltmeter
5) Frequency counter
6) Monitor TV (with A/V jacks)
7) Alignment tapes
   - MH-1 : Parts No. 7099046
   - 30HMP2-1 : Parts No. 7099089
   - 24HMASF-2: Parts No. 7099153 (Hi-Fi alignment tape)
8) Blank tape

Cautions on adjustments

1) If there are no special instructions, the following conditions apply.
   - Oscilloscope probe: 10:1
   - Oscilloscope synchronization: Internal sync
   - Ground of test equipment: TP1803 (GND) on Main P.C.B
2) When making more than one adjustment, perform the adjustments in the order listed.

Servicing positions

The circuit boards can be set to the servicing positions as follows when servicing and adjusting the VCR.

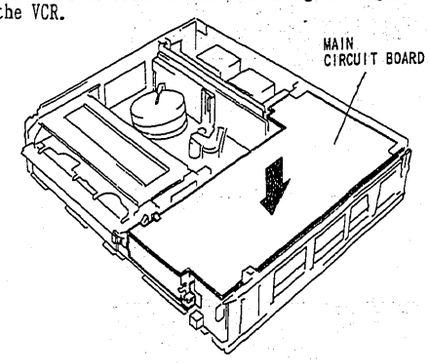


Fig. 1

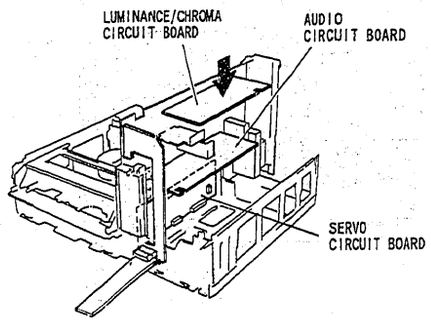
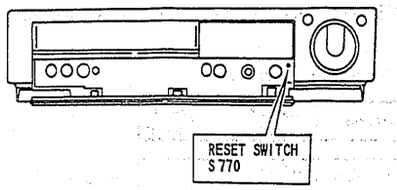


Fig. 2

Usable servicing methods

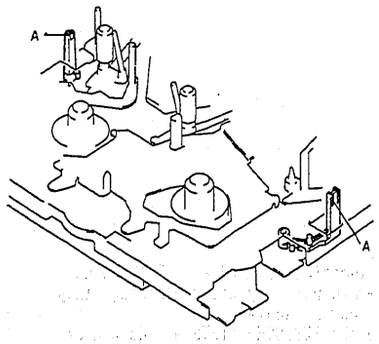
1. To reset the microprocessor [For VT-F370A]
   All microprocessors installed in the unit will be reset once the AC power cord is removed from the AC outlet.

2. To reset the microprocessor
   [For VT-F372A/F375AW]
   The microprocessors used in this unit can be reset by pressing switch (S770) on the Function SW circuit board.



3. To set the VCR to the loading state without loading a cassette
   1) Unplug the power cord from the AC outlet.
   2) Cover the supply and take-up end sensors (sections A in the figure below) with black masking tape, etc. to shut off the light.
   3) Plug the power cord into an AC outlet.
   4) Turn the VCR on.
      The VCR can accept the inputs of each mode in this state. However, the rewind operation cannot be performed for more than a few seconds because the take-up reel disk is in the stop state and reel pulses cannot be detected.

   [Cautions]
   Always return the VCR to the original state in the following order after the above operations have been completed.
   1) Remove the masking tape, etc. from the supply and take-up end sensors.
   2) Unplug the power cord from the AC outlet once to reset the system control microprocessor.



4. To set the tracking to the center
   If Tracking: Center is specified, press the TRACKING UP(▲) and DOWN(▼) buttons simultaneously to set tracking to the center.

Adjustment Parts Locations

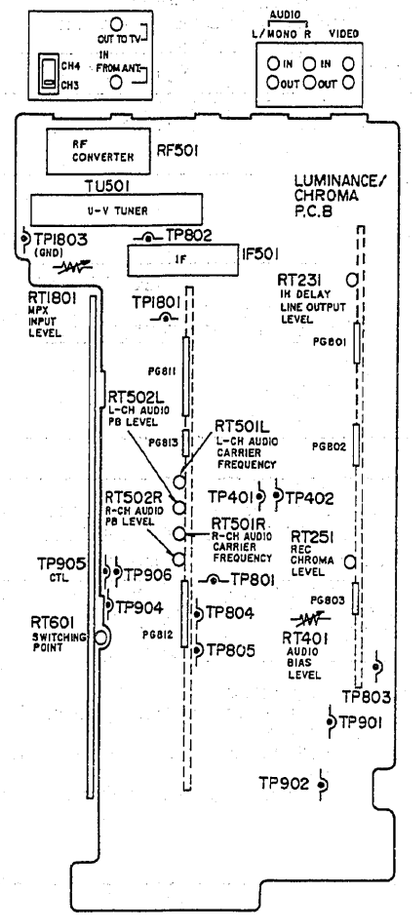


Fig. 1 Main Circuit Board (Solder Side)

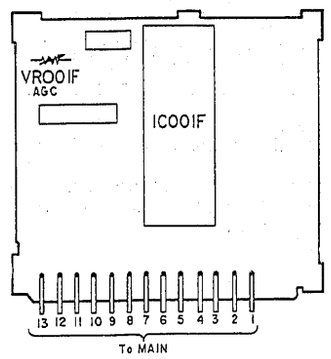


Fig. 3 IF Circuit Board (Component Side)

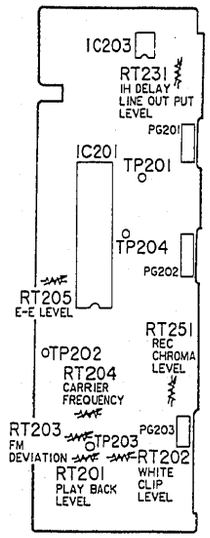


Fig. 2 Luminance/Chroma Circuit Board (Component Side)

1. SERVO CIRCUIT ADJUSTMENT

1. Head Switching Point Adjustment

Purpose of adjustment and fault occurring if incomplete

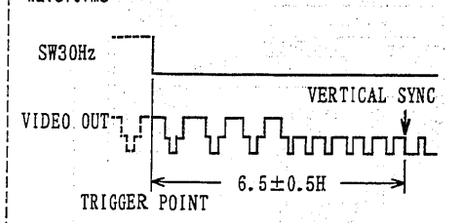
Purpose: To set the video head switching point during play to approximately the center where the CH-1 and CH-2 envelopes overlap each other.

Fault:
- The vertical sync signal is degraded and vertical jitter occurs.
- Switching noise appears across the bottom of the screen.

Test Equipment/Jigs	Test Equipment Connection Points	VCR State	Adjustment Point
• Oscilloscope	• CH-1: VIDEO OUT • CH-2: TP906(SW30Hz)	• Play alignment tape (color bar signal)	• RT601 (SWITCHING POINT)
• Alignment tape (MH-1) (Parts No.7099046)			

Adjustment Procedure
Vertical sync signal:
Set to 6.5H±0.5H from the trailing edge (trigger position) of the SW30Hz pulse.
<Settings of oscilloscope>
- Trigger with CH-2.
- Set the sync slope to "-".

Waveforms



2. Vertical Jitter Correction

Purpose of adjustment and fault occurring if incomplete

Purpose: To Suppress vertical jitter during slow motion and still play.

Fault: Vertical jitter occurs in the picture during slow motion and still play.

Test Equipment/Jigs	Test Equipment Connection Points	VCR State	Adjustment Point
• Color bar generator • Monitor TV • Blank tape	• VIDEO IN • Check with monitor TV	• Record color bar signal and play it back with the same VCR.	• TRACKING UP (Remote control) • TRACKING DOWN (Remote control)

Adjustment Procedure
- EP V. jitter correction -
Record in the EP mode and play back in the still mode with the same VCR.
1) Press the PAUSE button of the VCR to set it to the still play mode.
2) Suppress vertical jitter in the picture.

- SP V. jitter correction -
Record in the SP mode and play back in the still mode with the same VCR.
1) Press the PAUSE button of the VCR to set it to the still play mode.
2) Suppress vertical jitter in the picture.

3. Slow Tracking Preset Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: To adjust the timing with which brake pulses are generated for the capstan motor during slow play and minimize noise.

Fault:

Test Equipment/Jigs	Test Equipment Connection Points	VCR State	Adjustment Point
• Color bar generator • Monitor TV • Blank tape	• VIDEO IN • Check with monitor TV	• Unplug the power cord from AC outlet to set slow tracking to the center.	• TRACKING UP (Remote control) • TRACKING DOWN (Remote control)

Adjustment Procedure
- EP Adjustment -
Record in the EP mode and play back with the same VCR.
1) Play back the recorded section in the slow mode.
2) Observing the monitor screen, move noise to the top of the screen.

- SP Adjustment -
Record in the SP mode and play back with the same VCR.
1) Play back the recorded section in the slow mode.
2) Observing the monitor screen, move noise to the top of the screen.

2. VIDEO CIRCUIT ADJUSTMENTS

1. E-E Level Adjustment

Purpose of adjustment and fault occurring if incomplete

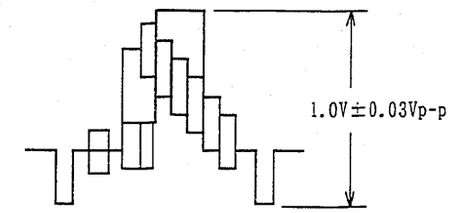
Purpose: Set the luminance level to the specified value in the E-E mode.

Fault: The brightness is different between the input and output signals.

Test Equipment/Jigs	Test Equipment Connection Points	VCR State	Adjustment Point
• Color bar generator • Oscilloscope (200mV/div., 10μs/div.)	• VIDEO IN • VIDEO OUT	• Apply a color bar signal and set the VCR to the E-E mode.	• RT205 (E-E LEVEL)

Adjustment Procedure
1) Adjust RT205 so that the color bar level is 1.0Vp-p±0.03Vp-p. (75Ω Terminated)

Waveforms



2. White Clip Level Adjustment

Purpose of adjustment and fault occurring if incomplete

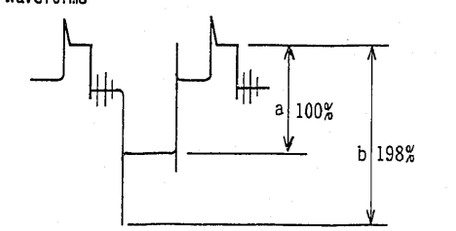
Purpose:

Fault:

Test Equipment/Jigs	Test Equipment Connection Points	VCR State	Adjustment Point
• Oscilloscope (200mV/div., 10μs/div.) • Color bar generator	• CH-1: TP203 • VIDEO IN	• Apply a color bar signal and set the VCR to the E-E mode.	• RT202 (WHITE CLIP LEVEL)

Adjustment Procedure
1) Adjust RT202 so the relationship between levels (a) and (b) is obtained as shown in the diagram on the right.

Waveforms



b=198%+2% /-5%

3. FM Carrier and Deviation Adjustment

Purpose of adjustment and fault occurring if incomplete

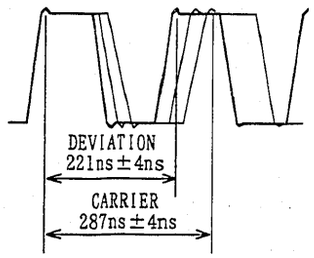
Purpose: Sets the FM carrier frequency and deviation to the specified values.

Fault: The picture is distorted when tapes recorded by other VCRs are played by this VCR and compatibility is not obtained.

Test Equipment/Jigs	Test Equipment Connection Points	VCR State	Adjustment Points
• Color bar generator • Oscilloscope • Blank tape	• VIDEO IN • IC201 Pin 15	• Receive a white(100%) signal (line input) • REC mode • EP mode	• RT204 (Carrier Frequency) • RT203 (FM Deviation)

Adjustment Procedure
1) Connect an oscilloscope to IC201 pin15.
2) Set the scope to (+) and adjust RT204 so the period of the widest pulse is 287ns±4ns.
3) Set the scope to (+) and adjust RT203 so the period of the narrowest pulse is 221ns±4ns.

Waveforms



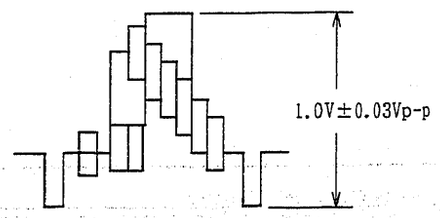
4. Playback Level Adjustemnt

Purpose of adjustment and fault occurring if incomplete
Purpose: To set the playback level to the specified value.
Fault: The brightness of the picture during playback is different from that during recording.

Test Equipment/Jigs	Test Equipment Connection Points	VCR State	Adjustment Point
· Color bar generator · Oscilloscope · Blank tape	· VIDEO IN · VIDEO OUT	· Receive a color bar signal (line input) · REC mode · EP mode	· RT201 (PLAYBACK LEVEL)

Adjustment Procedure
1) Play back the recorded signal and adjust RT201 so that the color bar level is 1.0Vp-p±0.03Vp-p. (75Ω Terminated)

Waveforms



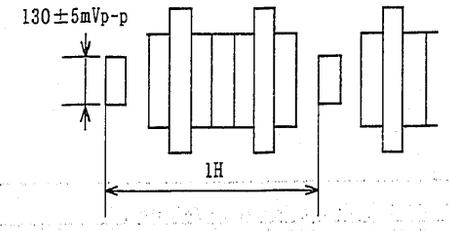
5. Record Chroma Level Adjustment

Purpose of adjustment and fault occurring if incomplete
Purpose: To set the record chroma level to the optimum value.
Fault: Beats may occur or the color may become poor.

Test Equipment/Jigs	Test Equipment Connection Points	VCR State	Adjustment Point
· Color bar generator · Oscilloscope · Blank tape	· VIDEO IN · TP803(Rec Chroma)	· Receive a color bar signal (Line input) · REC mode · EP mode	· RT251 (REC CHROMA LEVEL)

Adjustment Procedure
1) Adjust RT251 so that the color burst level is 130±5mVp-p.

Waveforms



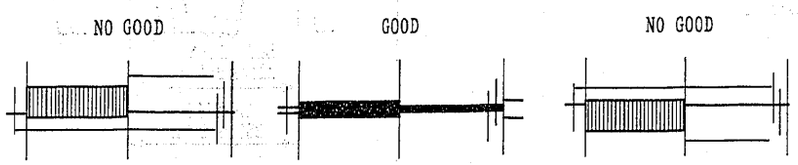
6. 1H Delay Line Output Level Adjustment

Purpose of adjustment and fault occurring if incomplete
Purpose: To set the input and output levels of the CCD 1H DELAY LINE the same.
Fault: Switching noise is conspicuous when dropout is compensated.

Test Equipment/Jigs	Test Equipment Connection Points	VCR State	Adjustment Point
· Oscilloscope	· CH-1: TP202 · CH-2: TP906 (SW30Hz)	· Play alignment tape (Color bar signal)	· RT231 (1H DELAY LINE OUTPUT LEVEL)
· Alignment tape (MH-1) (Parts No.7099046)			

Adjustment Procedure
1) Adjust RT231 to minimize level at the waveform.

Waveforms



3. AUDIO CIRCUIT ADJUSTMENT

1. Audio Carrier Frequency Adjustment

Purpose of adjustment and fault occurring if incomplete
Purpose: To set the audio carrier frequency to the specified value.
Fault: Compatibility with tapes recorded by another VCR cannot be obtained.

Test Equipment/Jigs	Test Equipment Connection Points	VCR State	Adjustment Points
· Frequency counter	· TP805 (when adjusting RT501L) · TP804 (when adjusting RT501R)	· No-signal record mode (SP mode)	· RT501L (L-CH) · RT501R (R-CH) (CARRIER FREQUENCY)

Adjustment Procedure
1) RT501L : The frequency counter reads 1300kHz±5kHz.
2) RT501R : The frequency counter reads 1700kHz±5kHz.

2. Hi-Fi Audio Playback Gain Adjustment

Purpose of adjustment and fault occurring if incomplete
Purpose: To set the Hi-Fi audio playback level to the specified value.
Fault: The optimum volume cannot be obtained.

Test Equipment/Jigs	Test Equipment Connection Points	VCR State	Adjustment Points
· VTVM · Hi-Fi alignment tape (24HMASF-2) (Parts No. 7099153)	· AUDIO OUT L (when adjusting RT502L) · AUDIO OUT R (when adjusting RT502R)	· Play Hi-Fi alignment tape.	· RT502L (L-CH) · RT502R (R-CH) (AUDIO PLAYBACK LEVEL)

Adjustment Procedure
1) RT502L : Set the reading of the VTVM to -4.8dBs±0.1dBs.
2) RT502R : Set the reading of the VTVM to -4.8dBs±0.1dBs.

3. Audio Bias Level Adjustment

Purpose of adjustment and fault occurring if incomplete
Purpose: To set the recording bias to the optimum level.
Fault: · Bias too high : High-frequency response deteriorates.
· Bias too low : Sound tends to be distorted.

Test Equipment/Jigs	Test Equipment Connection Points	VCR State	Adjustment Point
· VTVM	· TP401 (REC BIAS) · TP402 (BIAS GROUND)	· No-signal record mode (SP mode)	· RT401 (AUDIO BIAS LEVEL)

Adjustment Procedure
1) RT401 : Set the reading of the VTVM to 3.1mV±0.1mVrms.

4. MPX Input Level Adjustment

Purpose of adjustment and fault occurring if incomplete			
Purpose: To set the level of the MPX signal supplied to the MTS processor in IC1801 from the tuner/IF to the specified level.		Fault: The S/N deteriorates or distortion becomes conspicuous.	
Test Equipment/Jigs	Test Equipment Connection Points	VCR State	Adjustment Point
· MTS sound signal generator · VTVM	· VHF IN · TP1801	· E-E mode	· RT1801 (MPX INPUT LEVEL)
Adjustment Procedure 1) RT1801 : Set the reading of the VTVM to -20.5dBs±0.2dBs. Note : MTS sound signal generator settings · Audio Freq. : 400Hz · Mod. signal : L+R			

4. IF/TUNER CIRCUIT ADJUSTMENT

1. AGC Adjustment

Purpose of adjustment and fault occurring if incomplete			
Purpose: The AGC adjustment determines the point where the AGC is activated.		Fault:	
Test Equipment/Jigs	Test Equipment Connection Points	VCR State	Adjustment Point
· RF NTSC color bar generator · DC Voltmeter	· VHF IN · TP1802 (AGC)	· Receive a color bar signal. (RF input)	· VR001F (AGC)
Adjustment Procedure 1) Set the VCR/TV select switch to VCR. 2) Supply a 199.25MHz/-44dBm RF NTSC color bar signal with 87.5% modulation to the VHF antenna terminal. 3) Tune to the RF-channel signal supplied from the NTSC color bar generator (select channel 11). 4) Adjust VR001F for 5.1±0.1V DC.			

CHAPTER 5

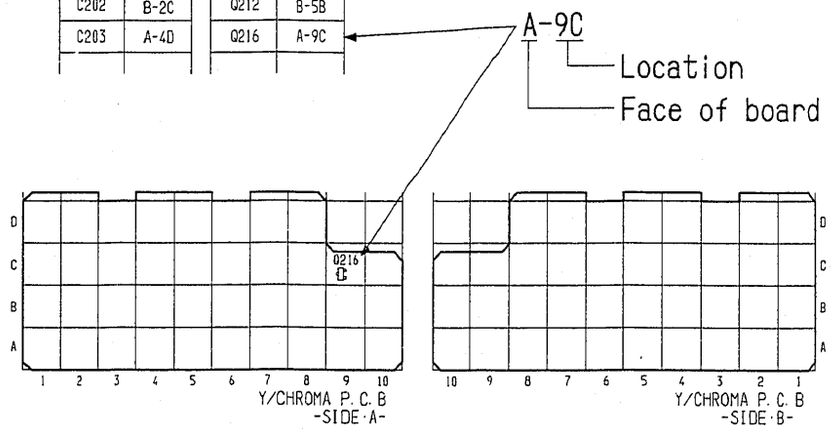
SCHEMATIC & CIRCUIT BOARD DIAGRAMS

MODELS : VT-F370A/F371A
VT-F372A/F375AW

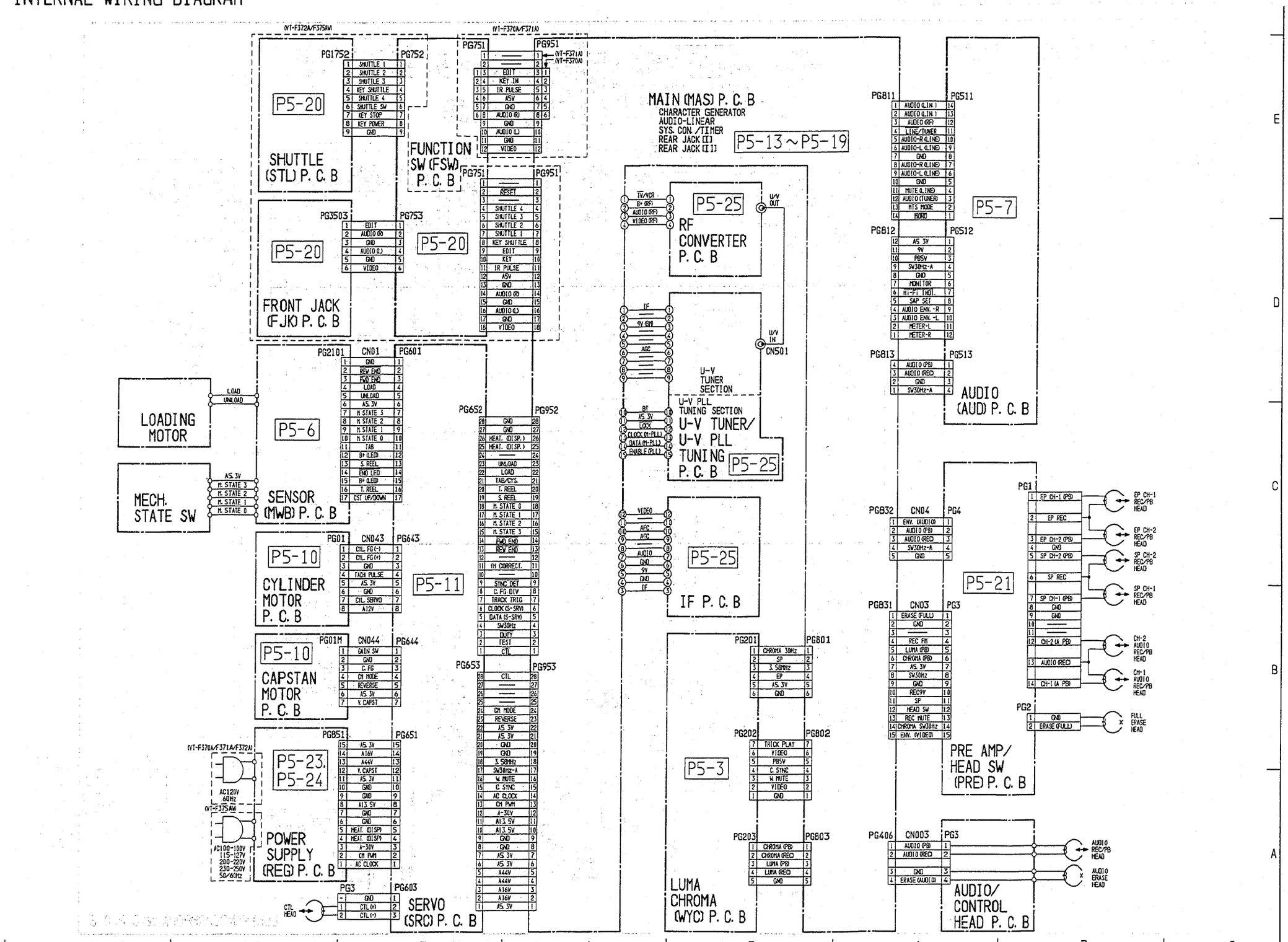
[Parts Location Indexing Tables]
This service manual shows the parts location indexing tables beside the major circuit board diagrams. These tables indicate the locations of each part on the circuit boards. Use the tables to locate the parts on the circuit boards.

IDENTIFICATION OF PARTS LOCATION

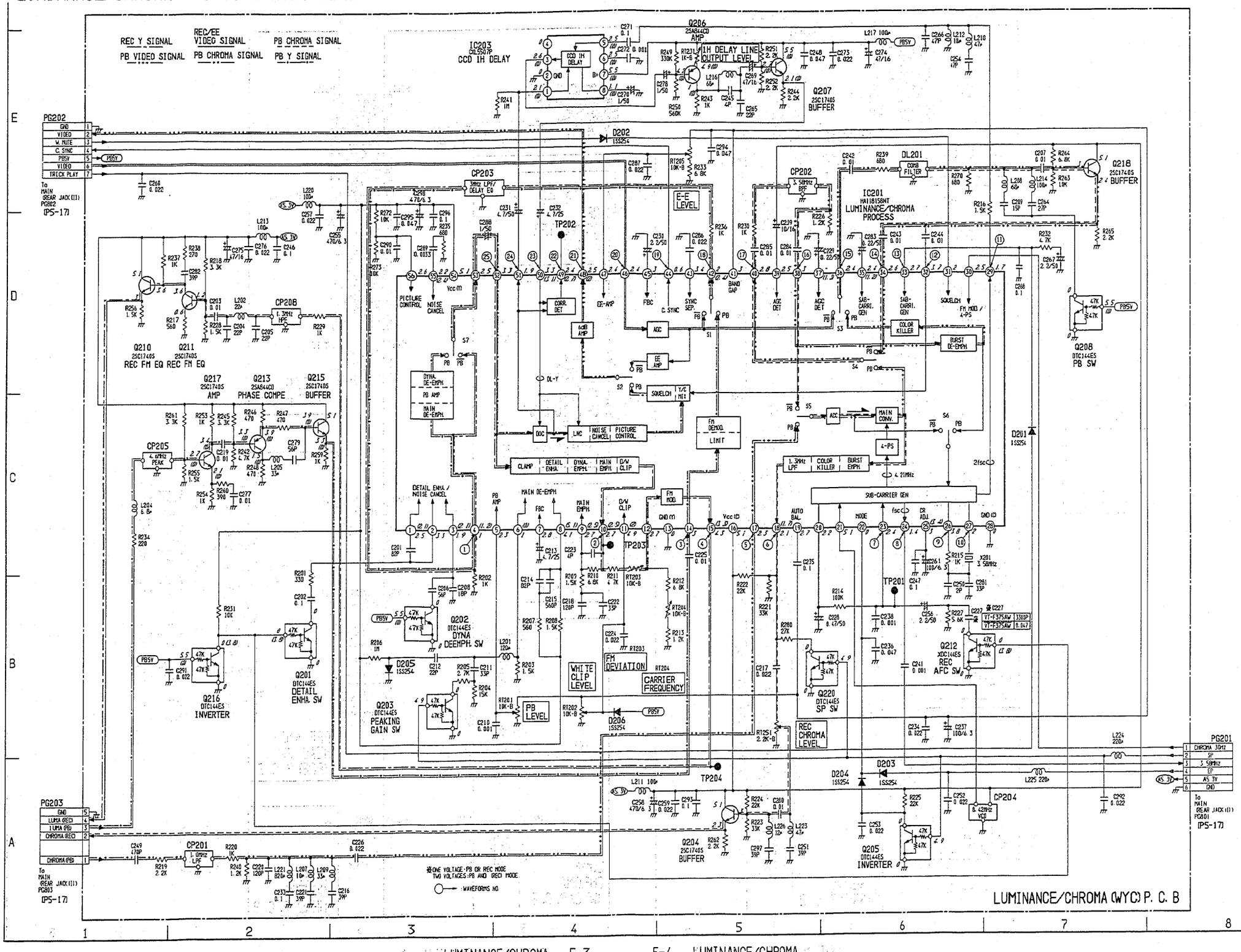
Symbol No.	Parts Location	Symbol No.	Parts Location
C201	A-2B	Q210	B-4G
C202	B-2C	Q212	B-5B
C203	A-4D	Q216	A-9C



INTERNAL WIRING DIAGRAM



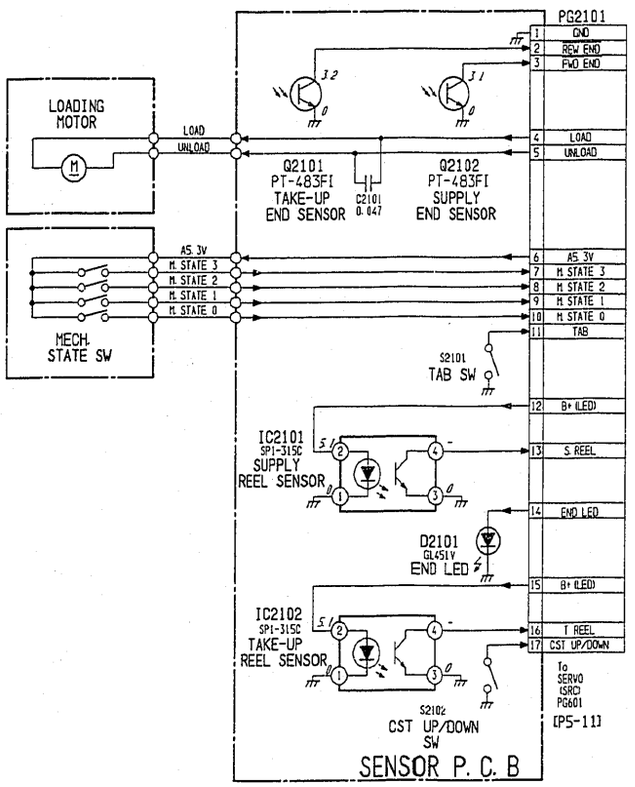
LUMINANCE/CHROMA (WYC) SCHEMATIC DIAGRAM



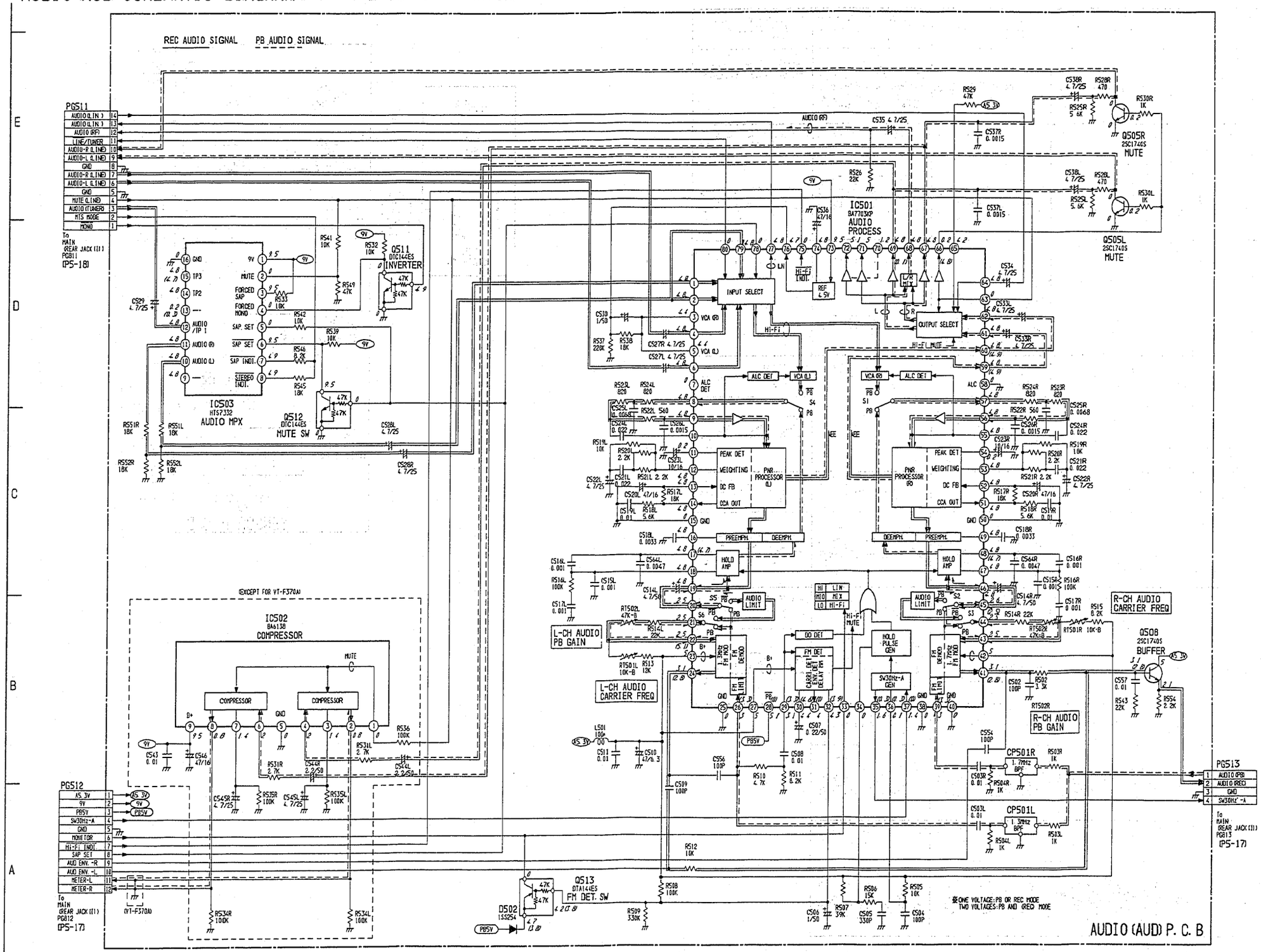
LUMINANCE/CHROMA WAVEFORMS

1-A IC201-4 500mVp-p 0.2V/20.0μ sec.cm REC	7-A IC201-23 60mVp-p 20mV/5.0μ sec.cm REC/PLAY	13-A IC201-33 72mVp-p 20mV/10.0μ sec.cm REC/PLAY	17-B IC201-40 200mVp-p 50mV/20.0μ sec.cm PLAY	23-A IC201-50 90mVp-p 50mV/20.0μ sec.cm REC
1-B IC201-4 200mVp-p 0.1V/20.0μ sec.cm PLAY	8-A IC201-24 550mVp-p 0.2V/200nsec.cm REC/PLAY	14-A IC201-34 70mVp-p 20mV/20.0μ sec.cm REC	18-A IC201-42 970mVp-p 0.2V/20.0μ sec.cm REC	23-B IC201-50 600mVp-p 0.2V/20.0μ sec.cm PLAY
2-A IC201-10 1.2Vp-p 0.5V/20.0μ sec.cm REC	9-A IC201-26 1.4Vp-p 0.5V/200nsec.cm REC	14-B IC201-34 95mVp-p 20mV/20.0μ sec.cm PLAY	18-B IC201-42 590mVp-p 0.2V/20.0μ sec.cm PLAY	24-A IC201-51 480mVp-p 0.1V/20.0μ sec.cm REC
3-B IC201-14 350mVp-p 0.1V/5.0msec.cm PLAY	9-B IC201-26 1.4Vp-p 0.5V/200nsec.cm PLAY	15-A IC201-36 1.0Vp-p 0.2V/20.0μ sec.cm REC	19-A IC201-44 5.2Vp-p 2V/20.0μ sec.cm REC/PLAY	24-B IC201-51 600mVp-p 0.1V/20.0μ sec.cm PLAY
4-A IC201-15 900mVp-p 0.2V/20.0μ sec.cm REC	10-A IC201-27 600mVp-p 0.2V/200nsec.cm REC/PLAY	15-B IC201-36 500mVp-p 0.2V/20.0μ sec.cm PLAY	20-A IC201-46 2.0Vp-p 0.5V/20.0μ sec.cm REC	25-A IC201-52 490mVp-p 0.1V/20.0μ sec.cm REC
5-B IC201-17 50mVp-p 20mV/5.0msec.cm PLAY	11-A IC201-29 620mVp-p 0.2V/100nsec.cm REC/PLAY	16-A IC201-38 150mVp-p 50mV/20.0μ sec.cm REC	21-A IC201-48 2.0Vp-p 0.5V/20.0μ sec.cm REC	25-B IC201-52 600mVp-p 0.1V/20.0μ sec.cm PLAY
6-A IC201-18 190mVp-p 50mV/20.0μ sec.cm REC	12-A IC201-32 70mVp-p 20mV/20.0μ sec.cm REC	16-B IC201-38 60mVp-p 20mV/20.0μ sec.cm PLAY	21-B IC201-48 2.3Vp-p 0.5V/20.0μ sec.cm PLAY	
6-B IC201-18 68.0mVp-p 20mV/5.0μ sec.cm PLAY	12-B IC201-32 98mVp-p 20mV/20.0μ sec.cm PLAY	17-A IC201-40 340mVp-p 0.1V/20.0μ sec.cm REC	22-A IC201-49 1Vp-p 0.2V/20.0μ sec.cm REC	

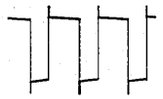
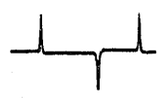
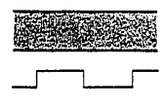
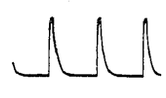
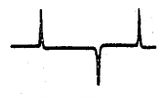
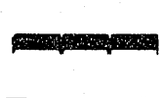
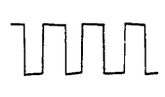
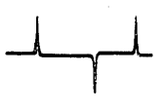
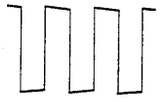
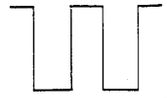
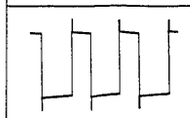
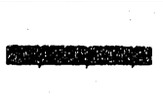
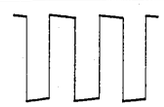
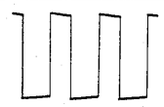
SENSOR (MWB) SCHEMATIC DIAGRAM



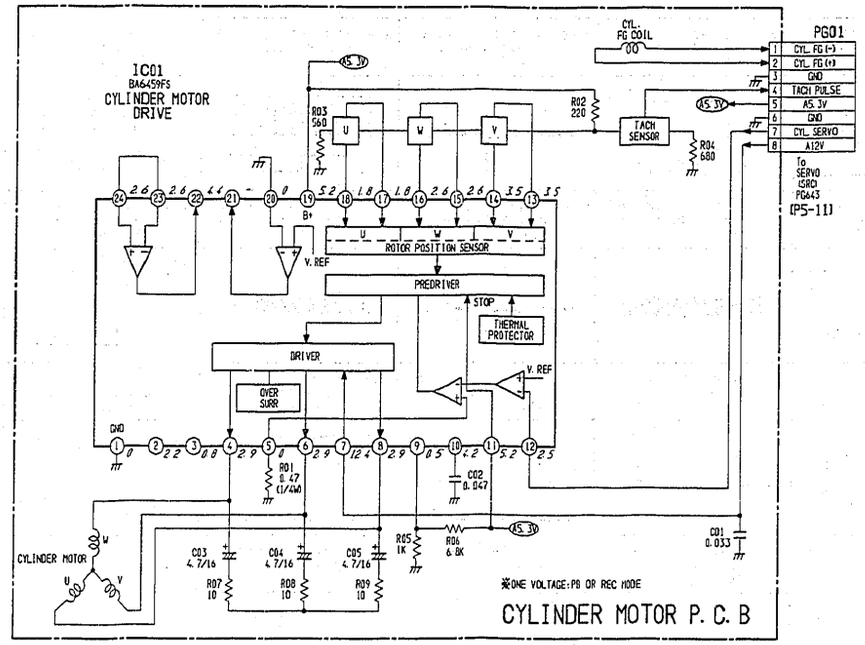
AUDIO (AUD) SCHEMATIC DIAGRAM



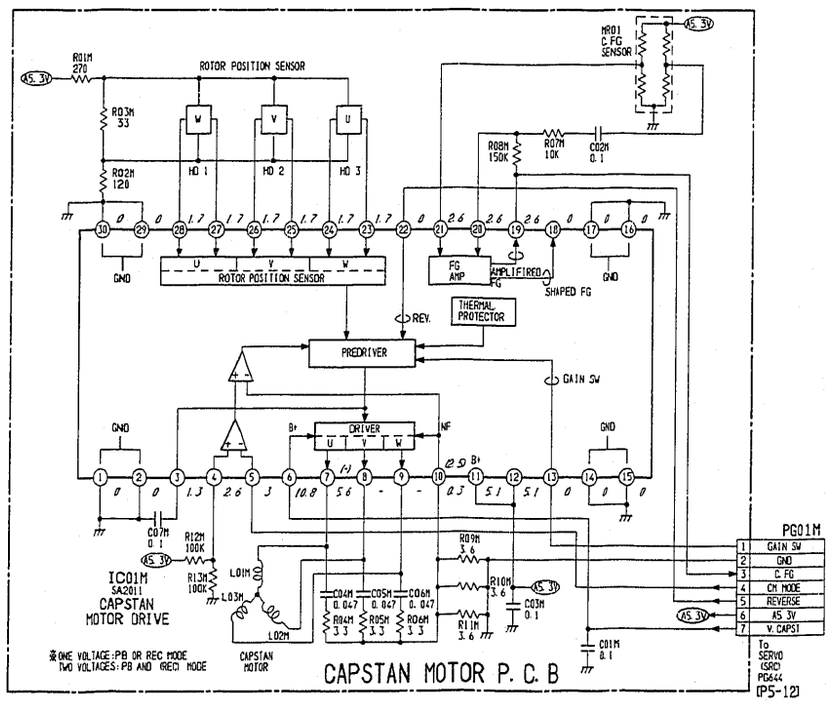
SERVO WAVEFORMS

51-A IC601-5 2.7Vp-p 0.5V/2.0msec.cm REC/PLAY	55-A IC601-30 5.9Vp-p 1V/10.0msec.cm REC	57-3 IC601-35 2.4Vp-p 0.5V/5.0msec.cm PLAY	60-A IC601-42 520mVp-p 0.2V/5.0msec.cm REC/PLAY	63-A IC601-49 3.9Vp-p 1V/20.0μ sec.cm REC/PLAY
				
52-A IC601-6 2.3Vp-p 0.5V/10.0msec.cm REC/PLAY	56-A IC601-34 32mVp-p 20mV/20.0μ sec.cm REC	58-B IC601-36 2.4Vp-p 0.5V/5.0msec.cm PLAY	61-A IC601-44 27mVp-p 20mV/10.0msec.cm REC	64-A IC601-53 5.5Vp-p 1V/10.0msec.cm REC/PLAY
				
53-A IC601-8 3.4Vp-p 1V/1.0msec.cm REC/PLAY	56-B IC601-34 2.4Vp-p 0.5V/5.0msec.cm PLAY	59-A IC601-40 5.4Vp-p 1V/10.0msec.cm REC	61-B IC601-44 5.6Vp-p 1V/10.0msec.cm PLAY	65-A IC601-54 5.5Vp-p 1V/100μ sec.cm REC/PLAY
				
54-A IC601-29 5.9Vp-p 1V/10.0msec.cm REC	57-A IC601-35 34mVp-p 20mV/20.0μ sec.cm REC	59-B IC601-40 5.4Vp-p 1V/10.0msec.cm PLAY	62-A IC601-45 5.6Vp-p 1V/10.0msec.cm REC/PLAY	
				

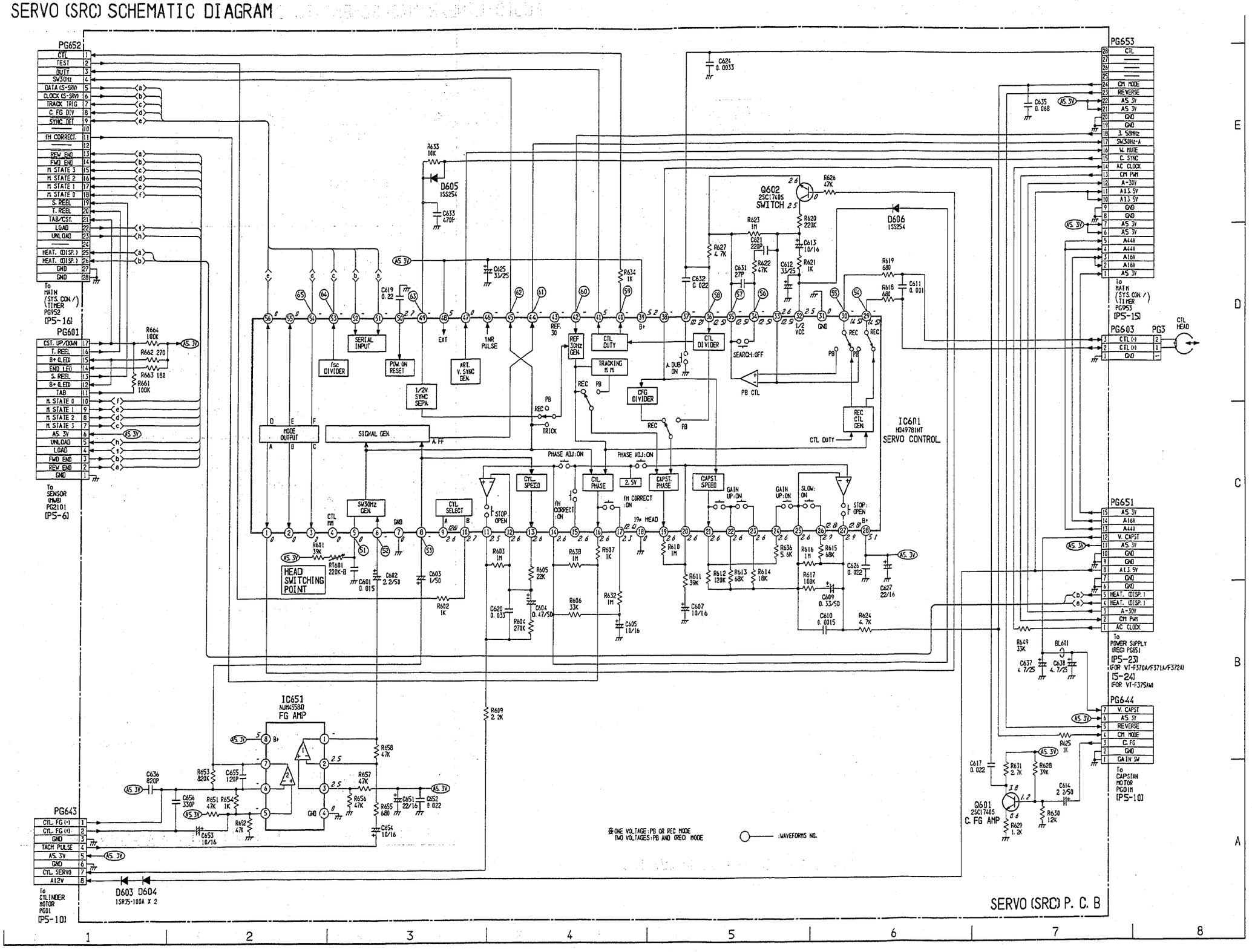
CYL. MOTOR SCHEMATIC DIAGRAM



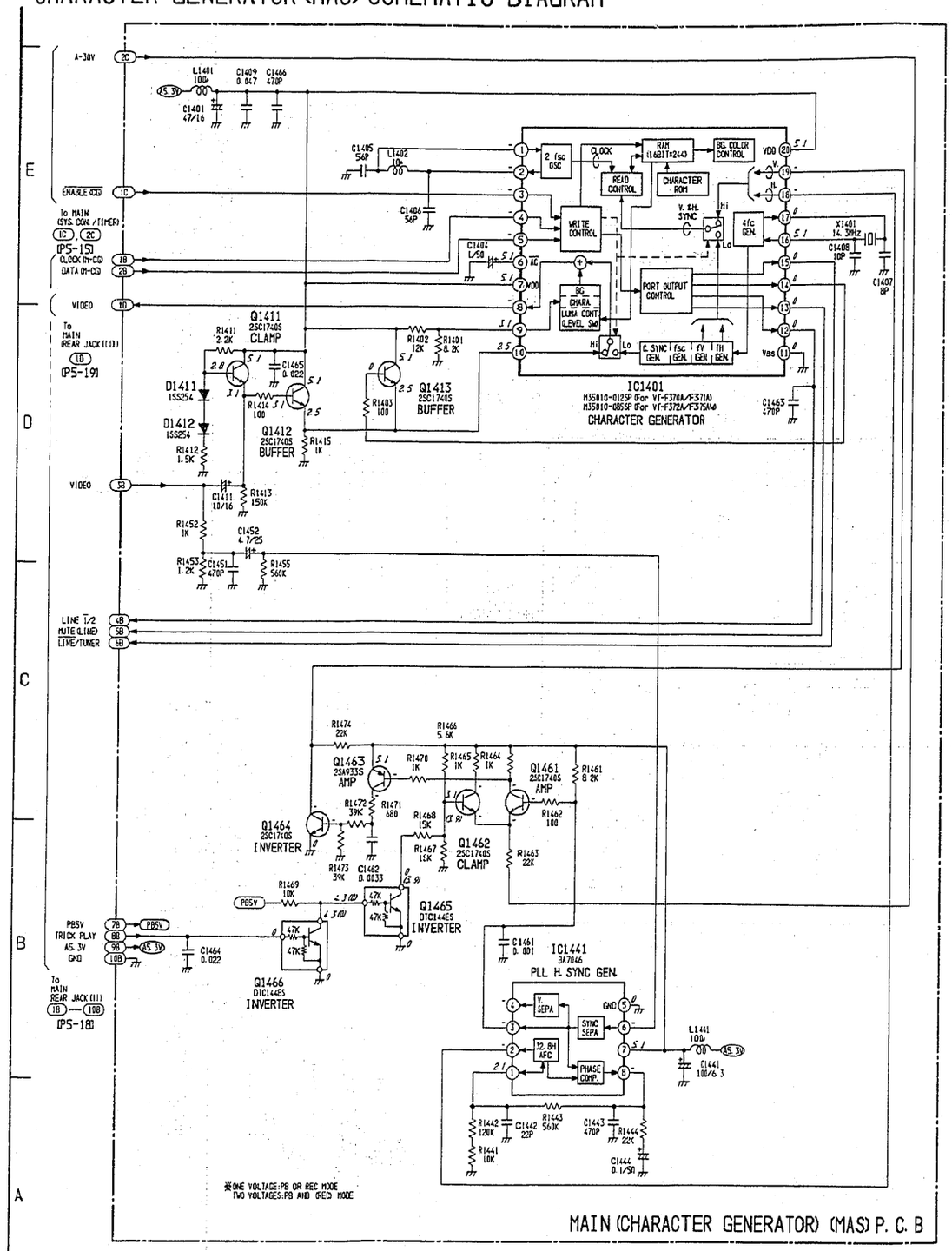
CAPSTAN MOTOR SCHEMATIC DIAGRAM



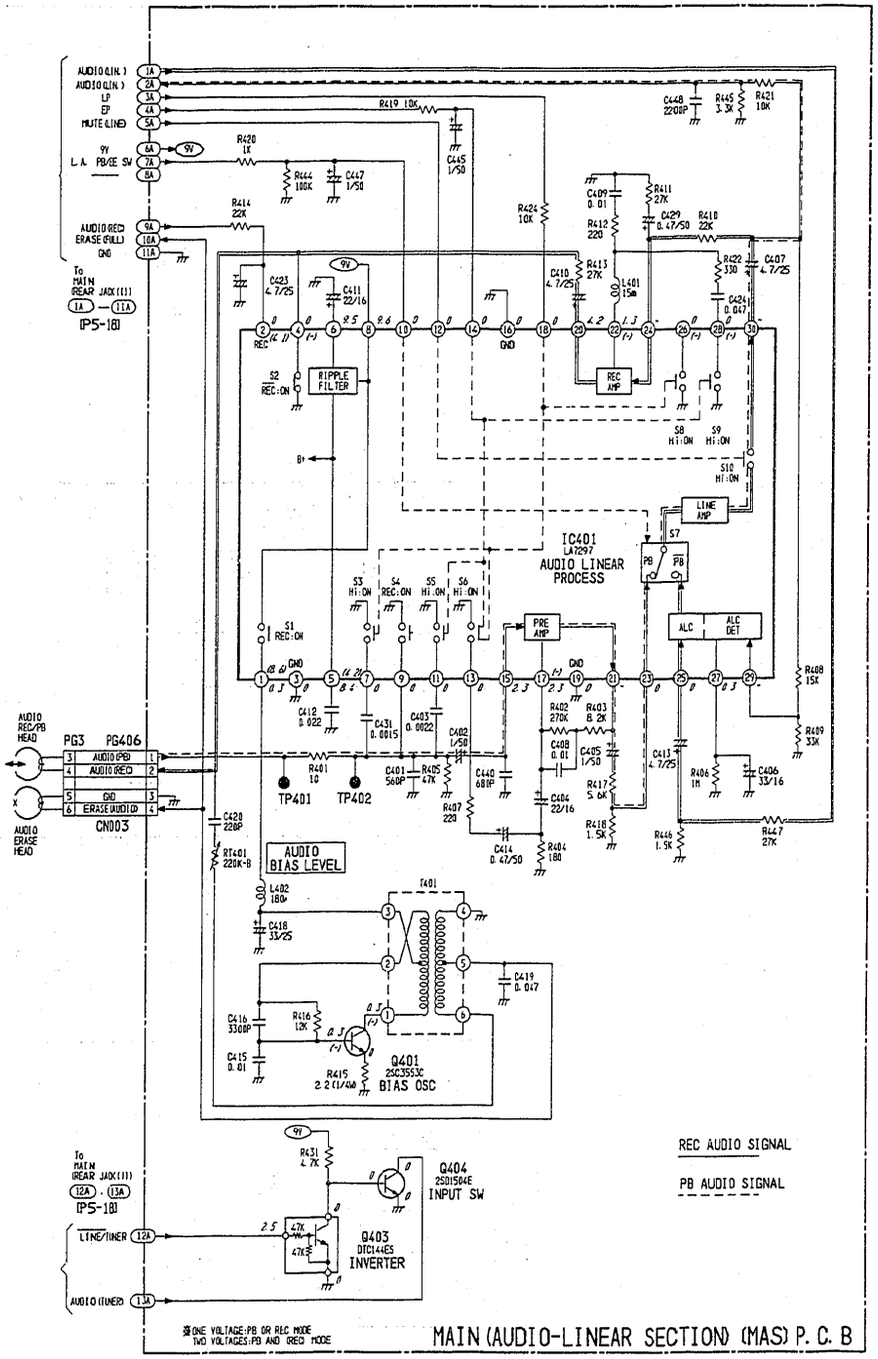
SERVO (SRC) SCHEMATIC DIAGRAM



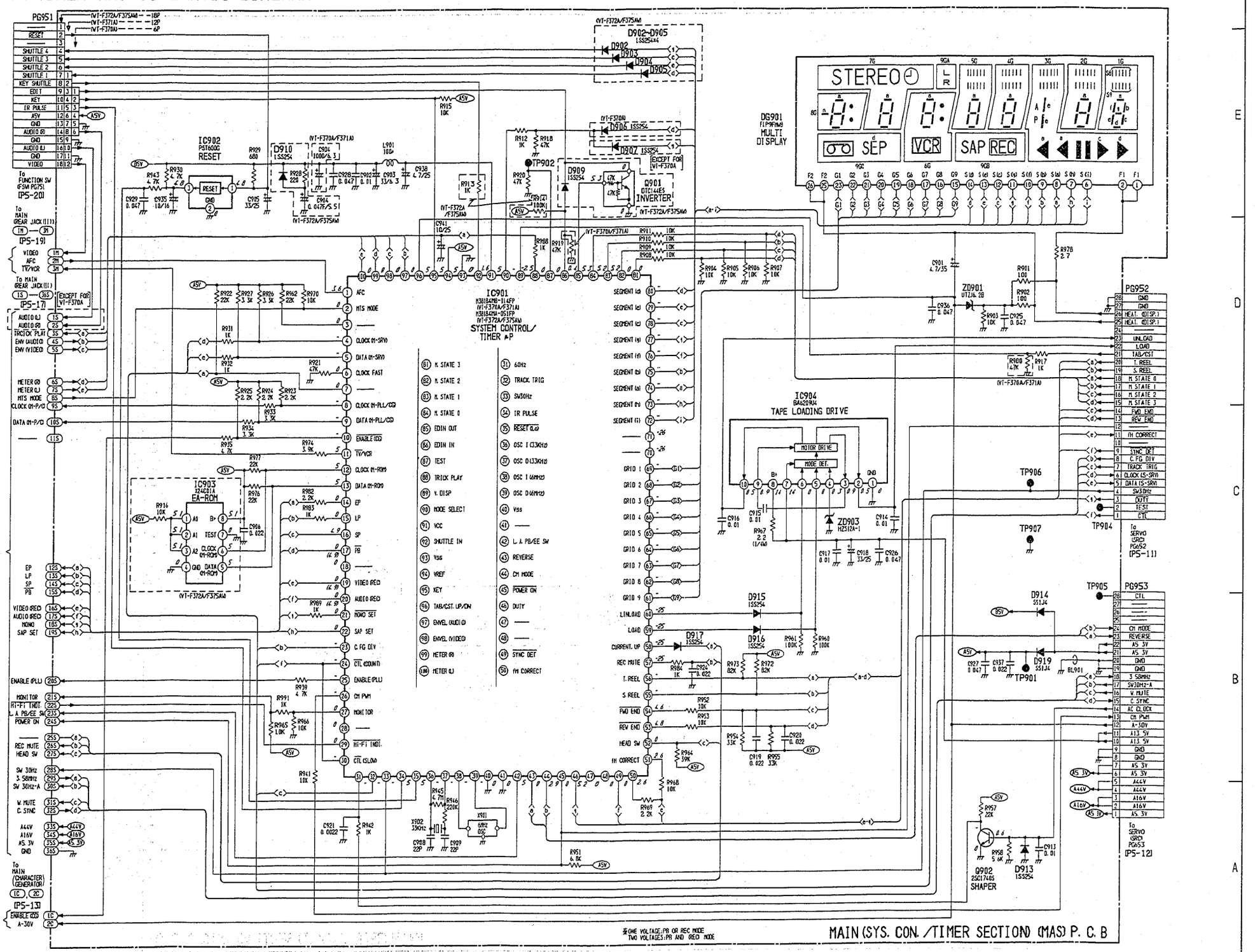
CHARACTER GENERATOR (MAS) SCHEMATIC DIAGRAM



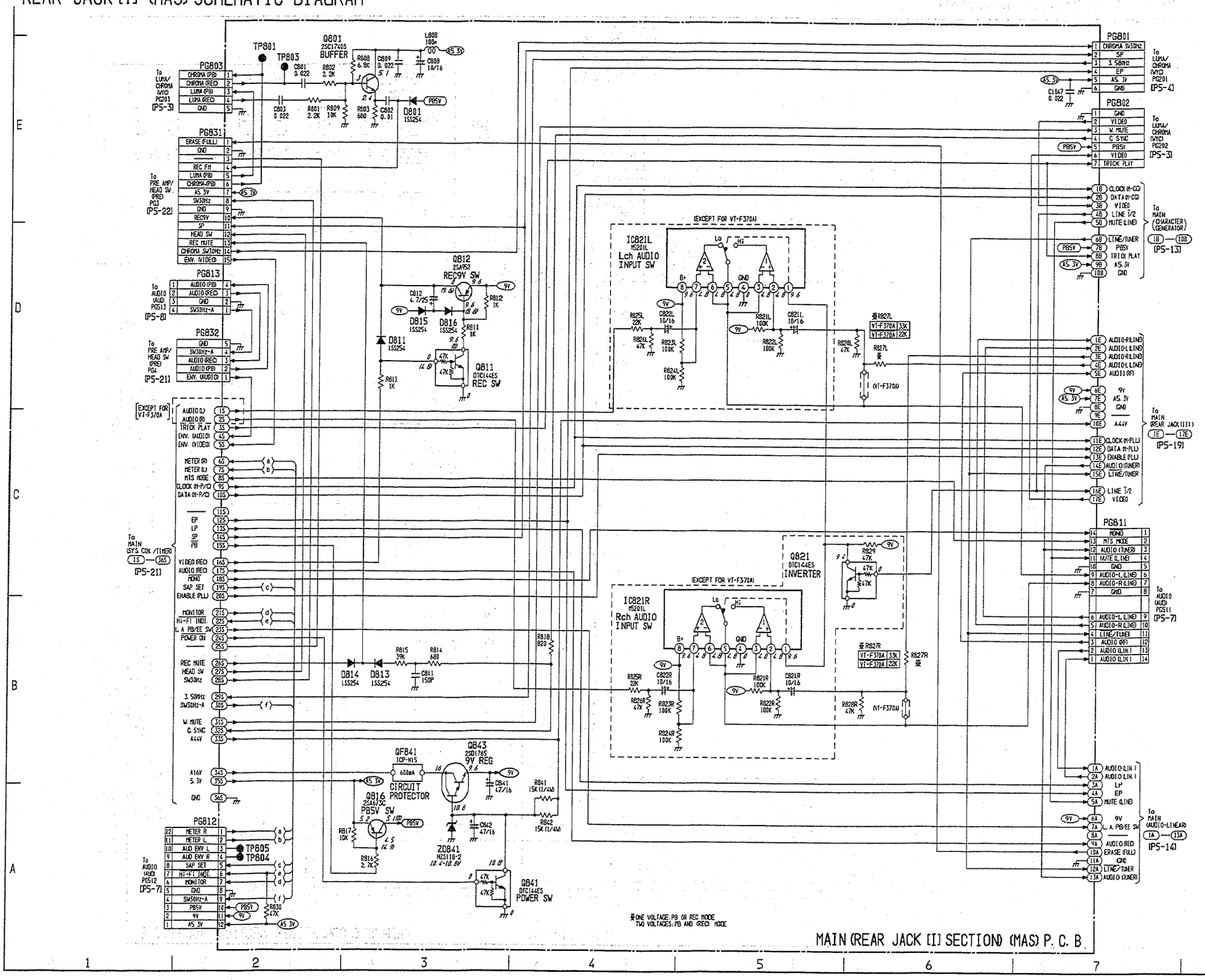
AUDIO-LINEAR (MAS) SCHEMATIC DIAGRAM



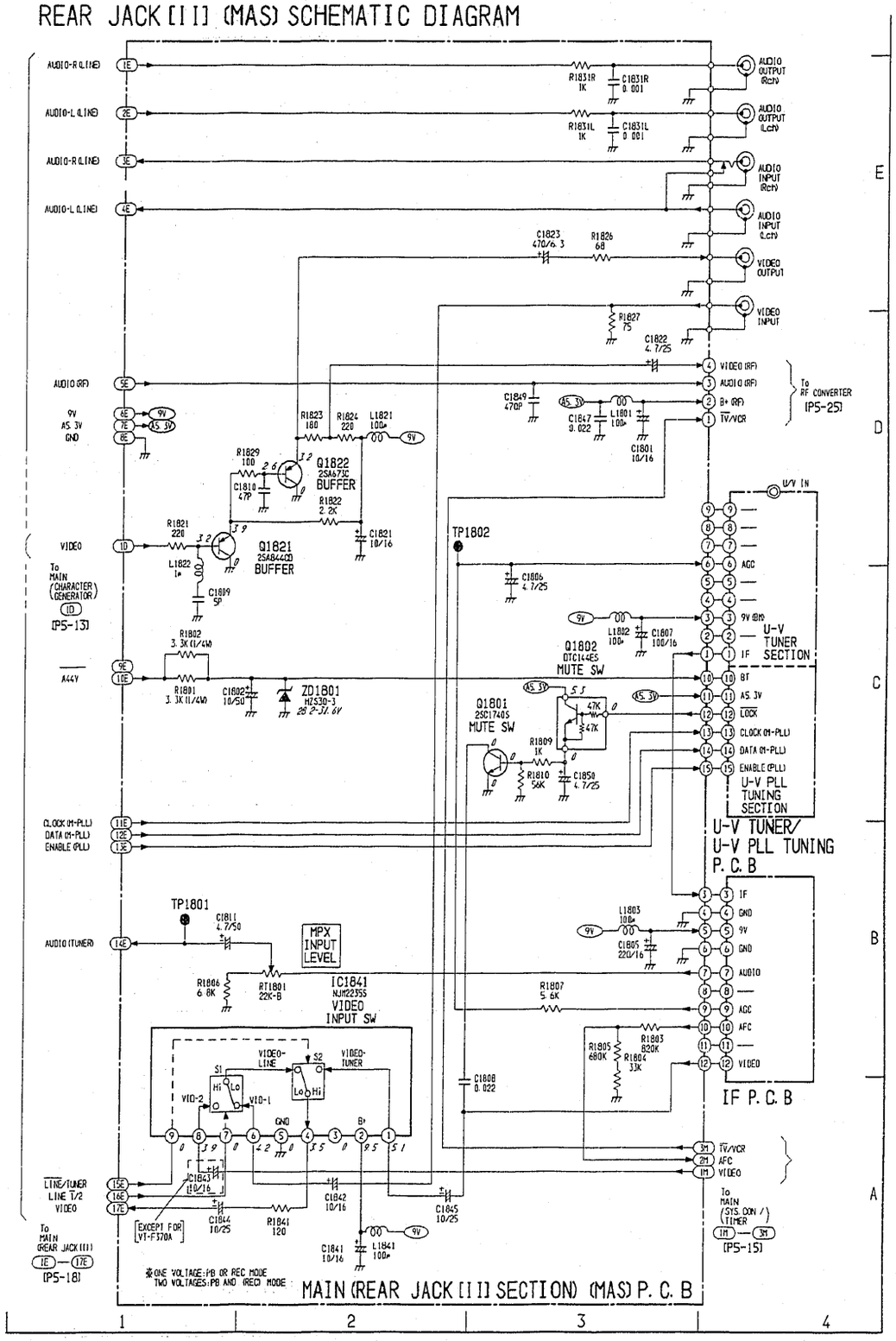
SYS. CON. /TIMER (MAS) SCHEMATIC DIAGRAM



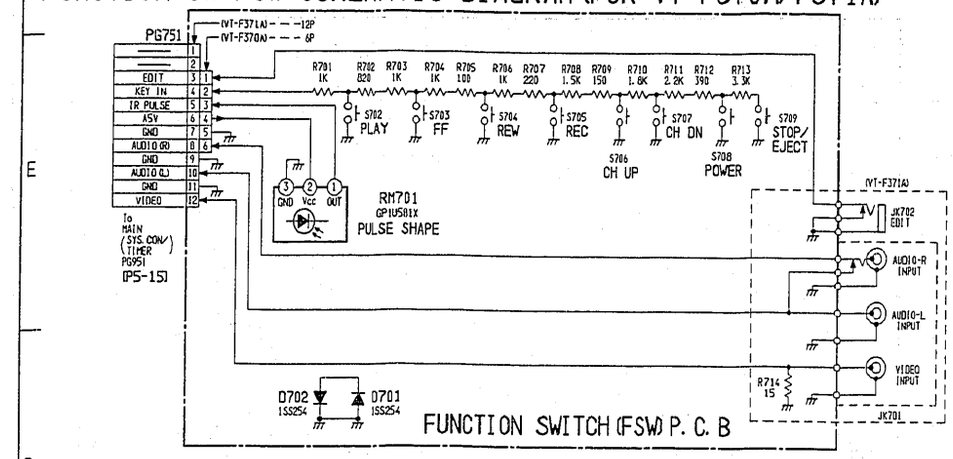
REAR JACK [I] (MAS) SCHEMATIC DIAGRAM



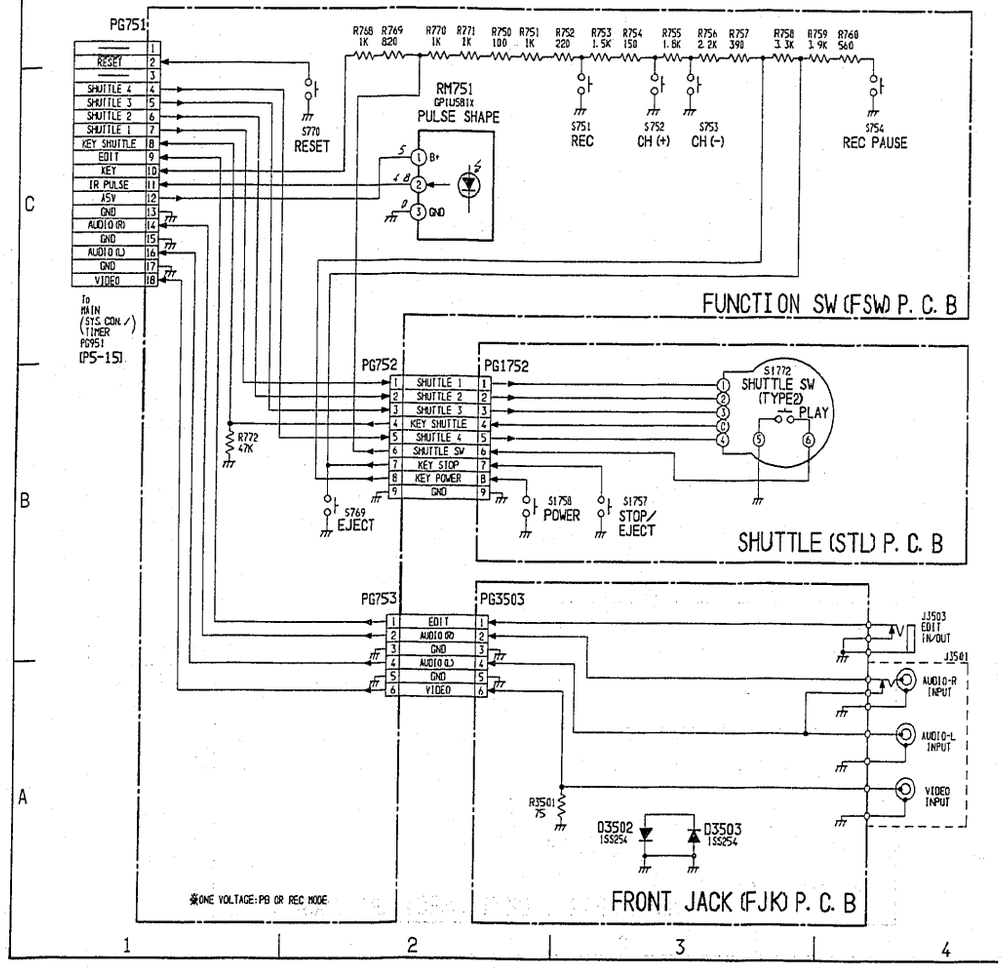
REAR JACK [I I] (MAS) SCHEMATIC DIAGRAM



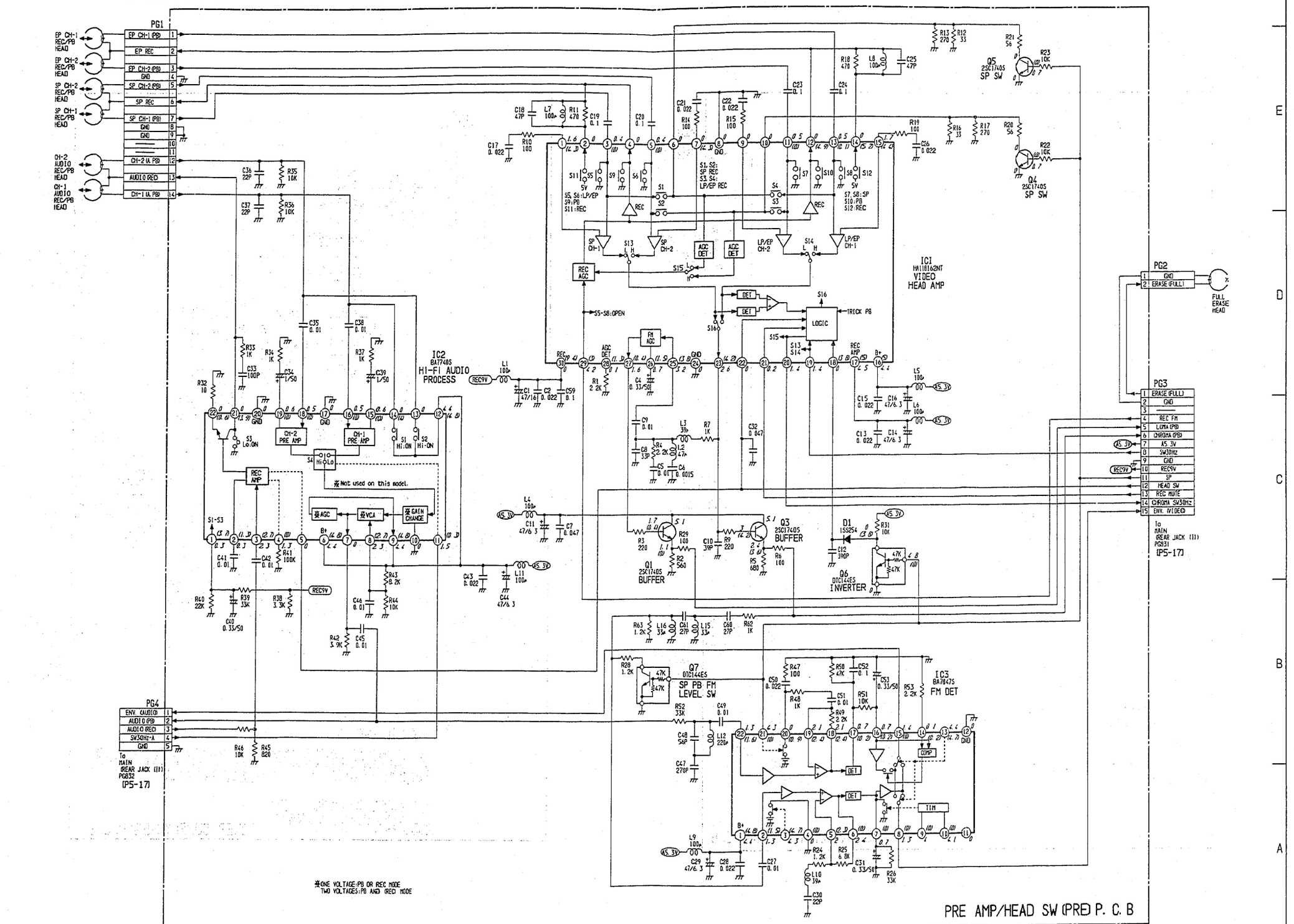
FUNCTION SW (FSW) SCHEMATIC DIAGRAM (FOR VT-F370A/F371A)



FUNCTION SW (FSW) SCHEMATIC DIAGRAM. FRONT JACK (FJK) SCHEMATIC DIAGRAM. SHUTTLE (STL) SCHEMATIC DIAGRAM (FOR VT-F372A/F375AW)

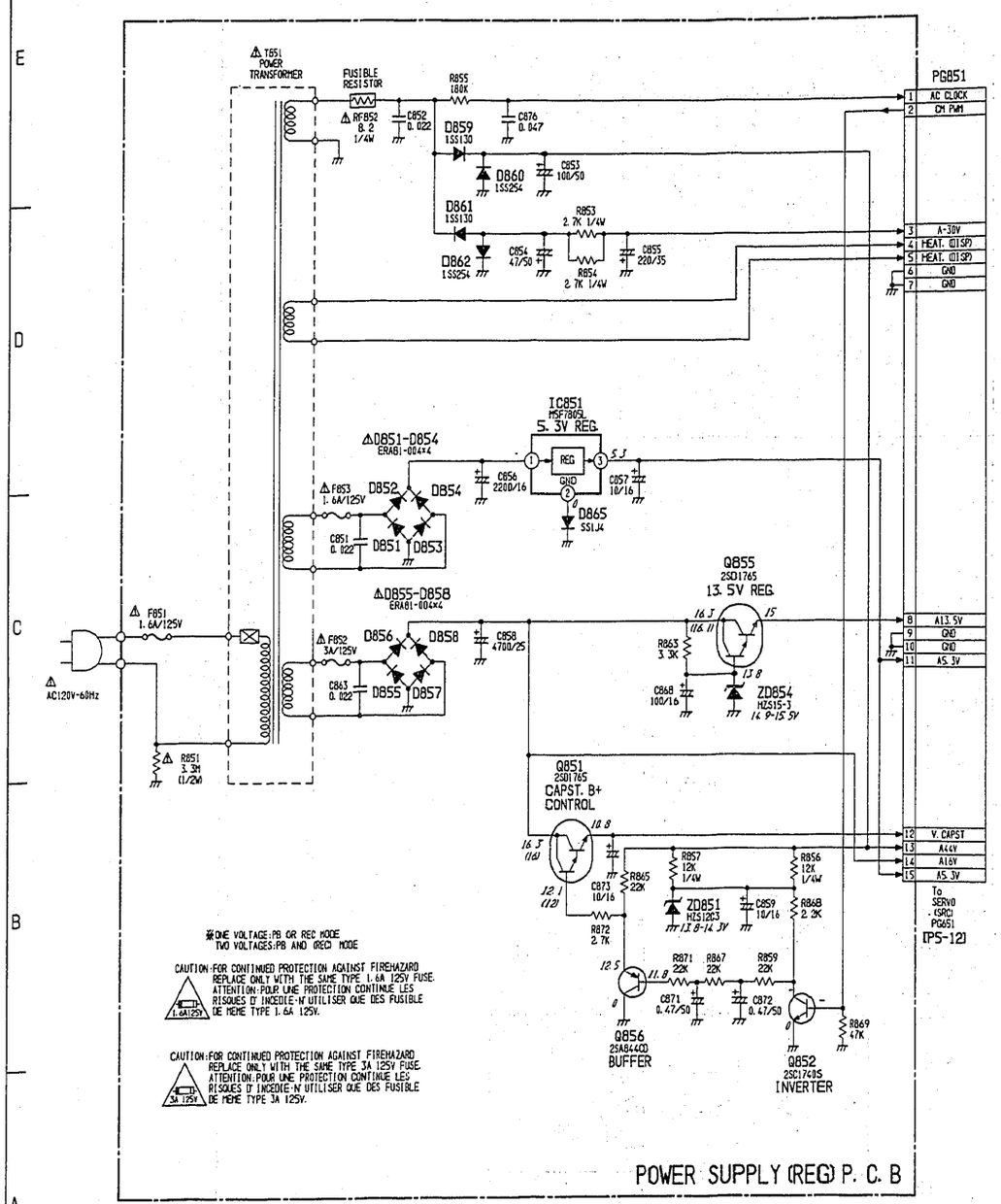


PRE AMP/HEAD SW (PRE) SCHEMATIC DIAGRAM

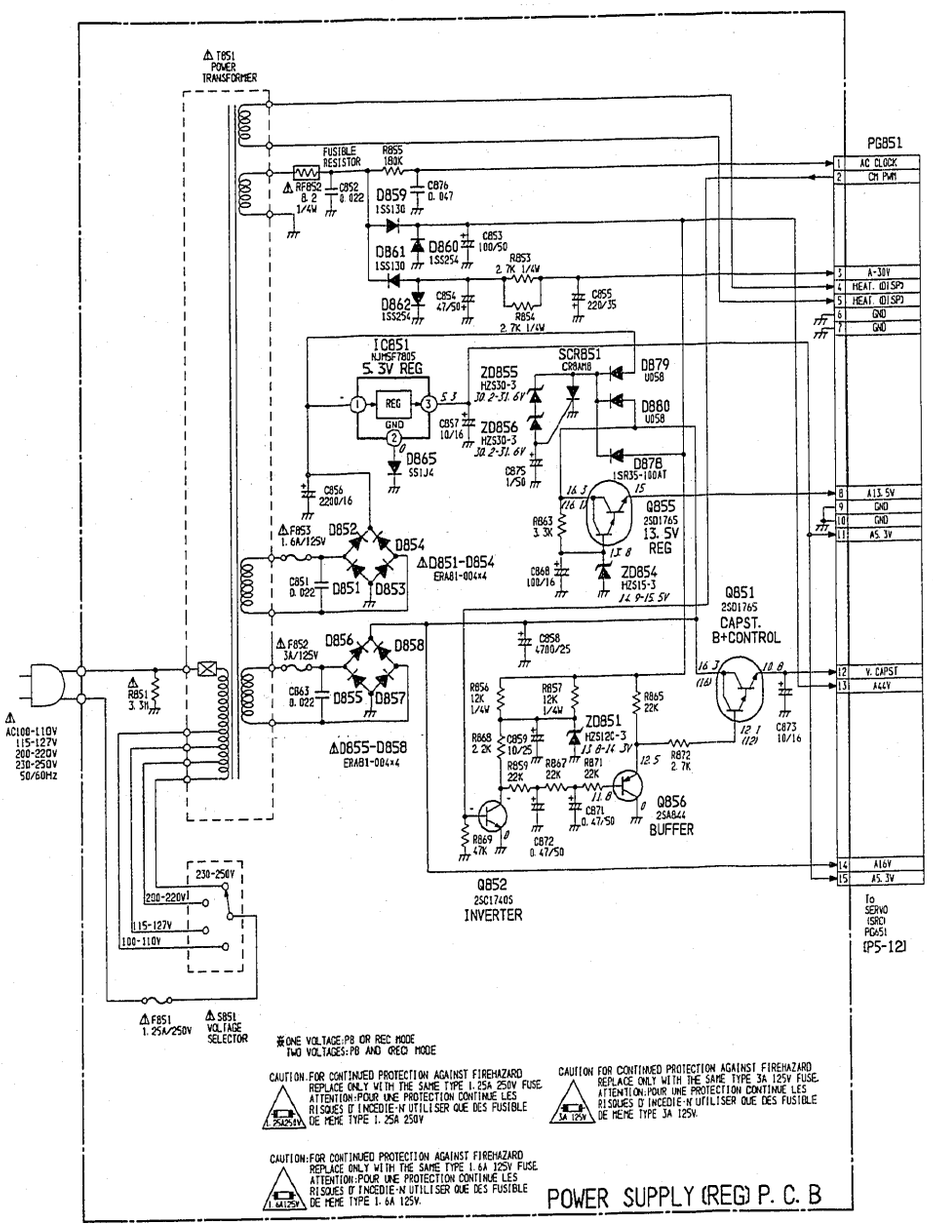


PRE AMP/HEAD SW 5-21 5-22 PRE AMP/HEAD SW

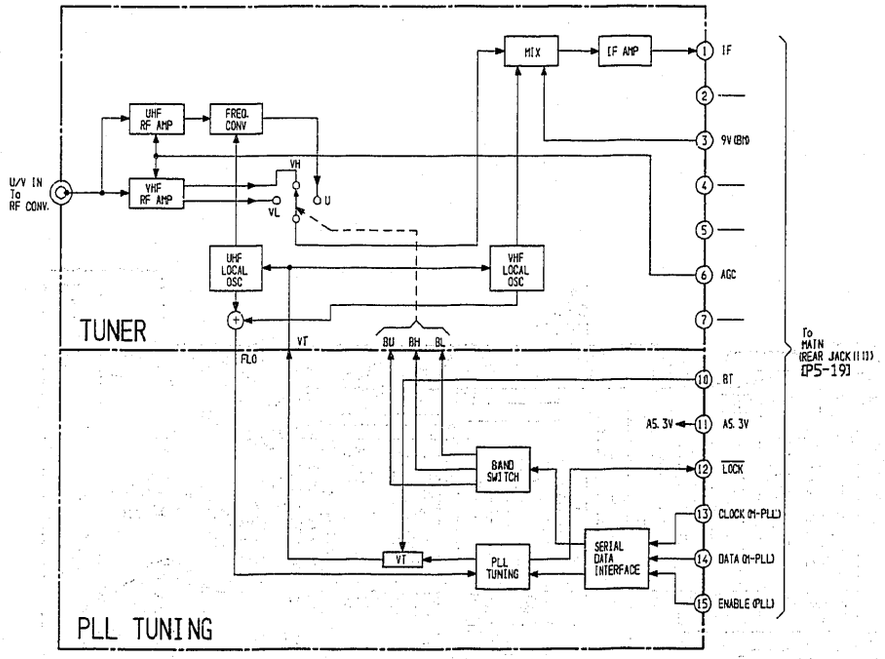
POWER SUPPLY (REG) SCHEMATIC DIAGRAM (FOR A)



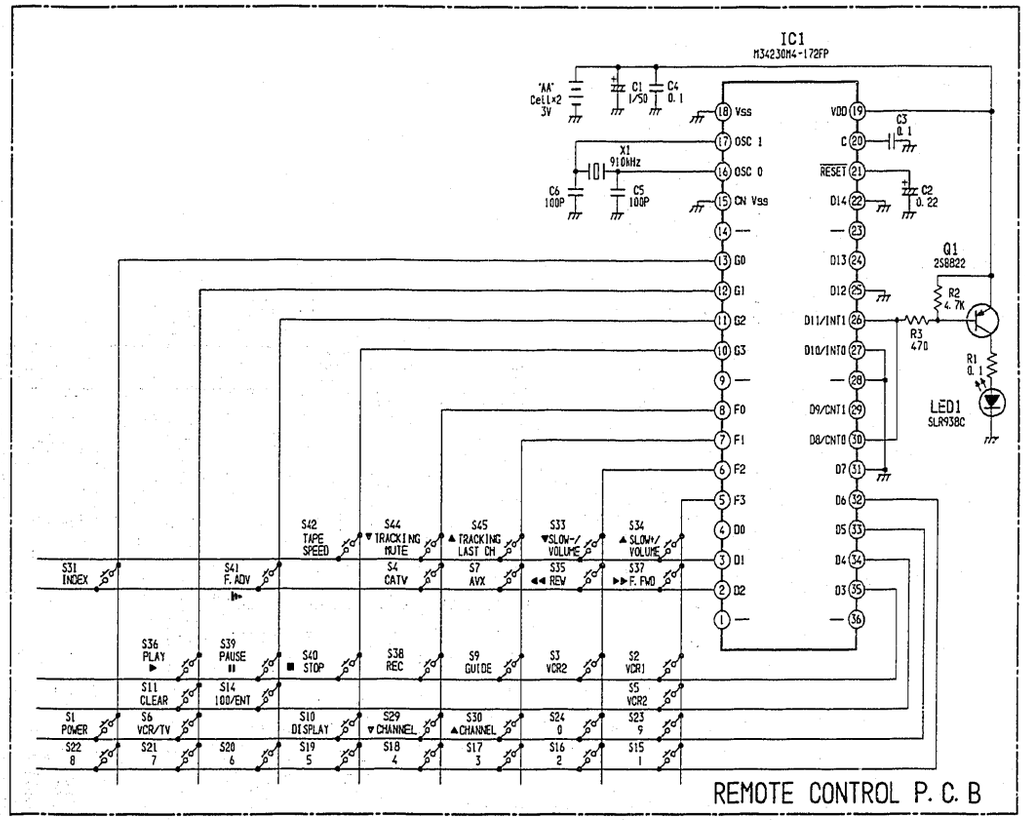
POWER SUPPLY (REG) SCHEMATIC DIAGRAM (FOR AW)



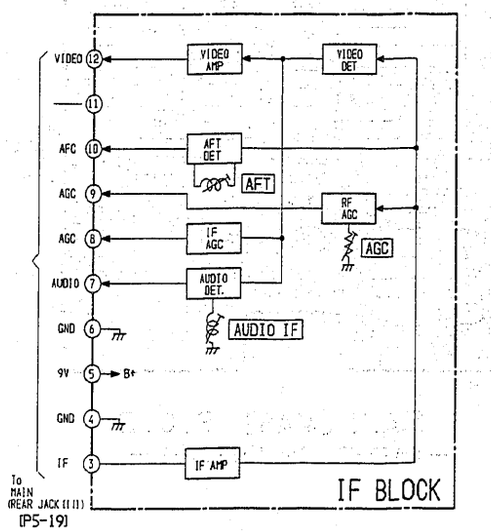
TUNER BLOCK DIAGRAM



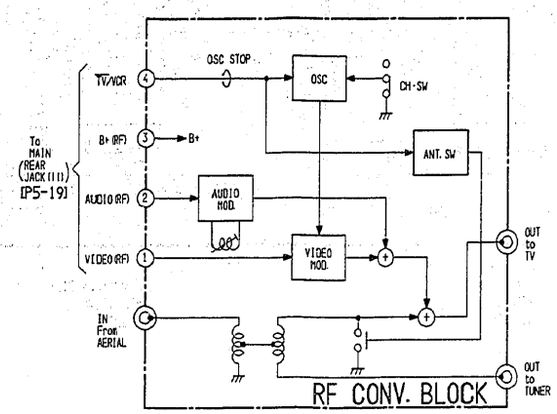
REMOTE CONTROL SCHEMATIC DIAGRAM



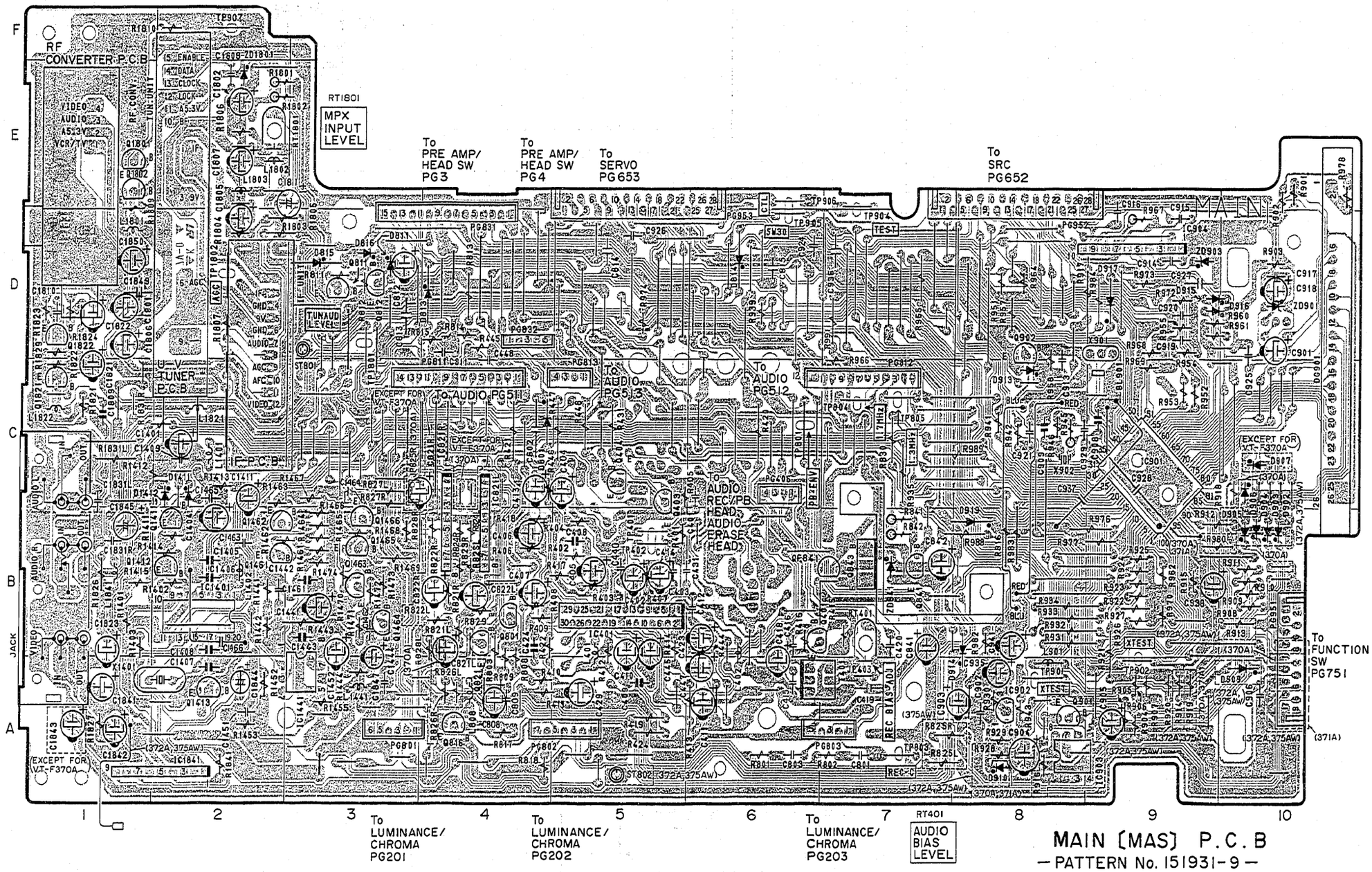
IF BLOCK DIAGRAM



RF CONVERTER BLOCK DIAGRAM



MAIN (MAS) CIRCUIT BOARD DIAGRAM



MAIN (MAS) P.C.B
— PATTERN No. 151931-9 —

IDENTIFICATION OF PARTS LOCATION

MAIN (MAS) P. C. B

Symbol No.	Parts Location
BL	
RL901	9C
C	
C401	6C
C402	5B
C403	5B
C404	5C
C405	5B
C406	4B
C407	4B
C408	5B
C409	5A
C410	5A
C411	6A
C412	6B
C413	4C
C414	5B
C415	6A
C416	6B
C418	6A
C419	7A
C420	7B
C423	6B
C424	4B
C429	5A
C431	5B
C440	5B
C445	5A
C447	6A
C448	4C
C801	7A
C802	4C
C803	6A
C808	4A
C809	4A
C811	4D
C812	3D
C813	3D
C814	5D
C815	6D
C821L	4B
C821R	4C
C822L	4B
C822R	4B
C841	7B
C842	7B
C901	10D
C902	8A
C903	8A
C904	8A
C905	9A
C906	10A
C908	9C
C909	9C
C913	8C
C914	9D
C915	9D
C916	9D
C917	10D
C918	10D
C919	9D
C920	9D
C921	8C
C924	6D
C925	10D
C926	5D
C927	9D
C928	9C
C929	8C
C935	8A
C936	7D
C937	8C
C938	9B
C941	8B
C1401	2C
C1404	2B
C1405	2B
C1406	2B
C1407	2A
C1408	2B
C1409	2C
C1411	2C
C1441	3B
C1442	2B
C1443	3B
C1444	3A
C1451	2A
C1452	3A
C1461	3B
C1462	3B
C1463	2B
C1464	3C
C1465	2C
C1466	2B
C1801	1D
C1802	2E
C1805	2D
C1806	1D
C1807	2E
C1808	2E
C1809	1C
C1810	1D
C1811	2E
C1821	1C
C1822	1D
C1823	1B
C1831L	1C
C1831R	1B
C1841	1A
C1842	1A
C1843	1A
C1844	2A
C1845	1B
C1847	3A
C1849	1D
C1850	1D
D	
D801	4C
D811	3D
D813	4D
D814	6D
D815	3D
D816	3D
D902	10B
D903	10B
D904	10B
D905	10B
D906	10C
D907	10C
D909	10A
D910	8A
D913	8C
D914	8B
D915	9D
D916	9D
D917	9D
D919	8B
D1411	2C
D1412	2C
DG	
DG901	10C
IC	
IC401	5B
IC821L	4B
IC821R	4B
IC901	9C
IC902	8A
IC903	8A
IC904	9D
IC1401	2B
IC1441	3A
IC1841	2A
JP	
JP403	7A
JP825R	3C
L	
L401	5B
L402	6B
L808	4A
L901	8A
L1401	2C
L1402	2B
L1441	3A
L1801	1D
L1802	2E
L1803	2E
L1821	2C
L1822	1C
L1841	1B
PG	
PG406	6C
PG801	3A
PG802	5A
PG803	7A
PG811	4C
PG812	7C
PG813	5C
PG831	4D
PG832	4D
PG951	10B
PG952	8E
PG953	5E
Q	
Q401	6B
Q403	5C
Q404	5C
Q801	4B
Q811	3D
Q812	3D
Q816	4A
Q821	4B
Q841	7B
Q843	7B
Q901	8A
Q902	8D
Q1411	2B
Q1412	2B
Q1413	2A
Q1461	2B
Q1462	2B
Q1463	3B
Q1464	3B
Q1465	3B
Q1466	3B
Q1801	1E
Q1802	1E
Q1821	1C
Q1822	1D
QF	
QF841	7B
R	
R401	5B
R402	5B
R403	5B
R404	5B
R405	5C
R406	4B
R407	5B
R408	4B
R409	4B
R410	4A
R411	4A
R412	5B
R413	6A
R414	5B
R415	7B
R416	6B
R417	5B
R418	4B
R419	5A
R420	6C
R421	4C
R422	4B
R424	5A
R431	5C
R444	6B
R445	4D
R446	4C
R447	5C
R448	5C
R801	6A
R802	7A
R803	4B
R808	4A
R809	4A
R811	3D
R812	3D
R813	4D
R814	4D
R815	4D
R816	8B
R817	4A
R818	4A
R821L	4B
R821R	4B
R822L	4B
R822R	4B
R823L	4B
R823R	4B
R824L	4B
R824R	4B
R825L	7A
R825R	7A
R826L	4A
R826R	4A
R827L	3C
R827R	3C
R828L	4B
R828R	3B
R829	4B
R830	7C
R841	7B
R842	7B
R901	10E
R902	10E
R903	10D
R904	9A
R905	9A
R906	9A
R907	9A
R908	10B
R909	10B
R910	10B
R911	10B
R912	9B
R913	10B
R914	9A
R915	9B
R916	8A
R917	8D
R918	10C
R919	9A
R920	9A
R921	9B
R922	9B
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R924	9B
R925	9B
R926	9B
R927	9B
R928	8A
R929	8A
R930	8A
R931	8B
R932	8B
R933	8B
R934	8B
R935	7C
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R941	8C
R942	8C
R943	8A
R945	8C
R946	8C
R951	8D
R952	9C
R953	9C
R954	9D
R955	9D
R957	8D
R958	8C
R960	9D
R961	9D
R962	9B
R964	8D
R965	7D
R966	7C
R967	9D
R968	9D
R969	9C
R970	9B
R972	9D
R973	9D
R974	5D
R976	9B
R977	9B
R978	10E
R980	9B
R982	8B
R983	8B
R984	9D
R988	8B
R989	8C
R991	7D
R1401	1B
R1402	2B
R1403	1B
R1411	2B
R1412	1C
R1413	2C
R1414	2B
R1415	1B
R1441	2B
R1442	2B
R1443	3B
R1444	3A
R1452	2A
R1453	2A
R1455	3A
R1461	3B
R1462	2B
R1463	2C
R1464	3B
R1465	3B
R1466	3B
R1467	3C
R1468	3B
R1469	3B
R1470	3B
R1471	3B
R1472	3B
R1473	3B
R1474	3B
R1801	2E
R1802	2E
R1803	2D
R1804	2D
R1805	2D
R1806	2E
R1807	2D
R1809	1D
R1810	2F
R1821	1C
R1822	1C
R1823	1D
R1824	1D
R1826	1B
R1827	1A
R1829	1D
R1831L	1C
R1831R	2C
R1841	2A
RT	
RT401	7B
RT1801	2E
ST	
ST801	3D
ST802	5A
T	
T401	7A
TP	
TP401	5B
TP402	5B
TP801	6C
TP803	7A
TP804	7C
TP805	7C
TP901	8A
TP902	9A
TP904	7E
TP905	6D
TP906	6E
TP907	2F
TP1801	3D
TP1802	2D
X	
X901	9D
X902	8C
X1401	2A
ZD	
ZD841	7B
ZD901	10D
ZD903	9D
ZD1801	2E

IDENTIFICATION OF PARTS LOCATION

LUMINANCE/CHROMA (WYC) P. C. B

Symbol No.	Parts Location
C	
C201	3B
C202	3A
C203	3A
C204	3A
C205	3A
C206	3A
C207	6B
C208	3A
C209	6B
C210	3A
C211	2A
C212	2A
C213	3A
C214	2B
C215	3B
C216	4A
C217	2A
C218	2B
C219	1B
C220	4A
C221	4A
C222	2B
C223	2B
C224	4A
C225	1B
C226	4A
C227	4A
C228	4A
C229	5B
C230	3B
C231	5B
C232	6B
C233	4A
C234	3B
C235	5B
C236	4A
C237	3B
C238	4A
C239	6B
C241	6B
C242	5C
C243	5B
C244	5B
C245	6A
C246	3B
C247	5A
C248	6A
C249	1A
C250	5A
C251	2A
C252	5A
C253	5A
C254	6B
C255	1B

Symbol No.	Parts Location
C256	4A
C257	1B
C258	5B
C259	5B
C260	5A
C261	5A
C264	6B
C265	6A
C266	6B
C267	5B
C268	5B
C269	6A
C270	6A
C271	6B
C272	6B
C273	6A
C274	6A
C275	1B
C276	1B
C277	1B
C278	6A
C279	1A
C280	2A
C281	5A
C282	3A
C283	5B
C284	4B
C285	4B
C286	3B
C287	3B
C288	2B
C289	2B
C290	1B
C291	3A
C292	2A
C293	4A
C294	3B
C295	3A
C296	3B
C297	2A
C298	2B
CP	
CP201	3A
CP202	4B
CP203	2B
CP204	4A
CP205	1B
CP208	4A
D	
D201	5B
D202	5B
D203	6B
D204	5B
D205	2A
D206	1A

Symbol No.	Parts Location
DL	
DL201	6B
IC	
IC201	4B
IC203	6A
L	
L201	2A
L202	3A
L204	1A
L205	1A
L207	4A
L208	6B
L209	4A
L210	6B
L211	5B
L212	6B
L213	3B
L214	6B
L216	6A
L217	6A
L220	2B
L221	4A
L223	2A
L224	5A
L225	5A
L226	2A
PG	
PG201	5A
PG202	4A
PG203	2A
Q	
Q201	2A
Q202	2A
Q203	1A
Q204	1A
Q205	5A
Q206	6A
Q207	6A
Q208	6B
Q210	3A
Q211	3A
Q212	4A
Q213	1A
Q215	1A
Q216	2A
Q217	1B
Q218	6B
Q220	2B
R	
R201	3A
R202	2B
R203	3A
R204	2A
R205	1A
R206	2B

Symbol No.	Parts Location
R207	3B
R208	3B
R209	2B
R210	2B
R211	2B
R212	2B
R213	2B
R214	4B
R215	5B
R216	6B
R217	3A
R218	3A
R219	3A
R220	4A
R221	4A
R222	4A
R223	2A
R224	2A
R225	5A
R226	5C
R227	4A
R228	3A
R229	4A
R230	4B
R231	2B
R232	5B
R233	3C
R234	1A
R235	2B
R236	1B
R237	3A
R238	3A
R239	5C
R240	4A
R241	6B
R242	1A
R243	6A
R244	5A
R245	1B
R246	1A
R247	1A
R248	1A
R249	6A
R250	6A
R251	6A
R252	5A
R253	1B
R254	1B
R255	1B
R256	2A
R259	1A
R260	1B
R261	1B
R262	2A
R263	6B

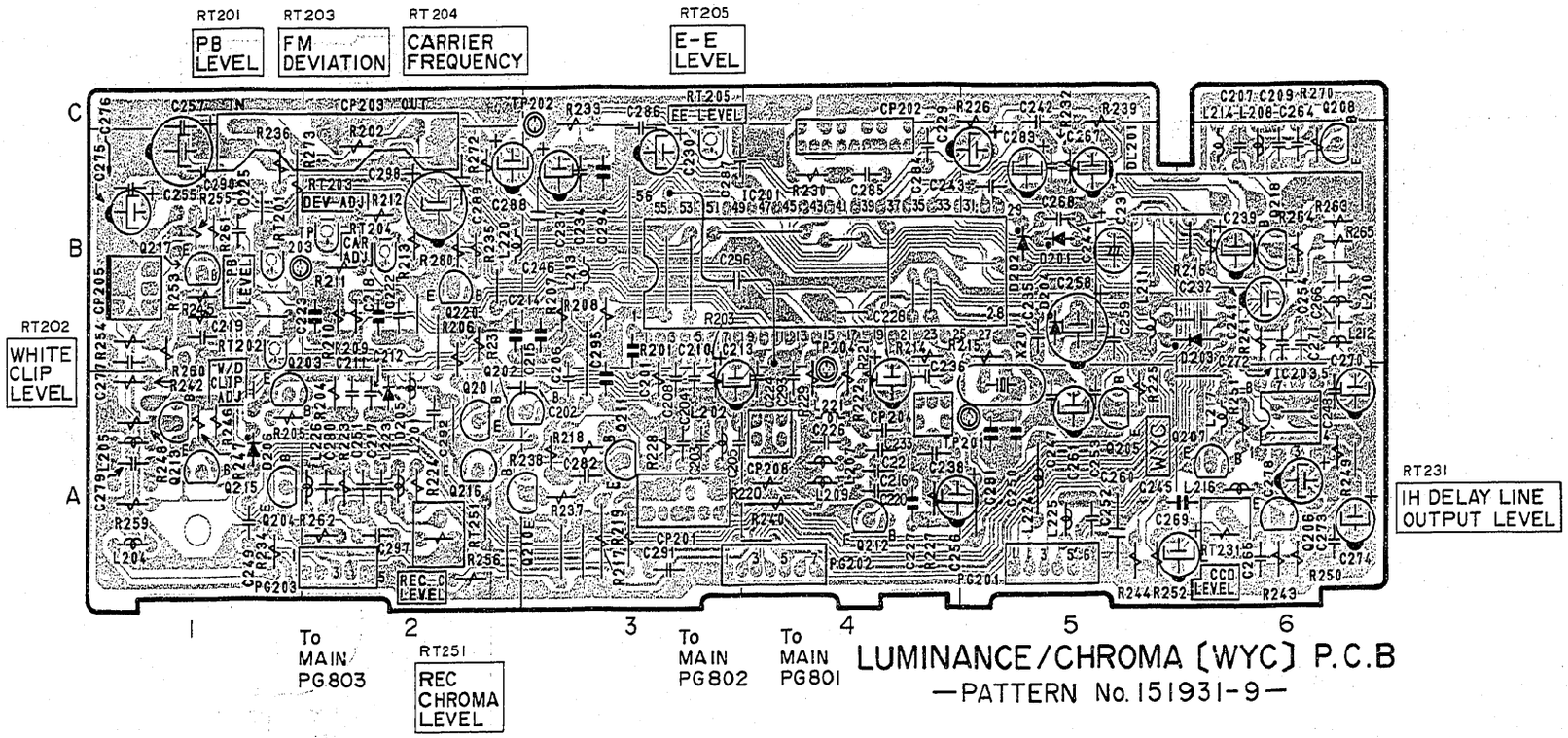
Symbol No.	Parts Location
R264	6B
R265	6B
R270	6B
R272	2B
R273	1B
R280	2B
RT	
RT201	1B
RT202	1B
RT203	2B
RT204	2B
RT205	3B
RT231	6A
RT251	2A
TP	
TP201	5A
TP202	3C
TP203	1B
TP204	4A
X	
X201	5A

SERVO (SRC) P. C. B

Symbol No.	Parts Location
BL	
BL601	6A
C	
C601	2A
C602	2A
C603	1B
C604	4A
C605	4A
C607	5A
C609	5A
C610	5A
C611	4B
C612	6B
C613	5B
C614	6B
C617	6B
C619	2B
C620	4A
C621	5B
C624	4B
C625	3B
C626	5A
C627	5A
C631	5A
C632	4B
C633	2B
C635	6A
C636	1B
C637	6A
C638	6A
C651	1A
C652	1A
C653	1B
C654	1A
C655	1B
C656	1B
D	
D603	1A
D604	1B
D605	5B
D606	4A
IC	
IC601	3A
IC651	1A
PG	
PG601	3A
PG603	4B
PG643	1A
PG644	6A
PG651	5A
PG652	2B
PG653	5B
Q	
Q601	6B
Q602	5B

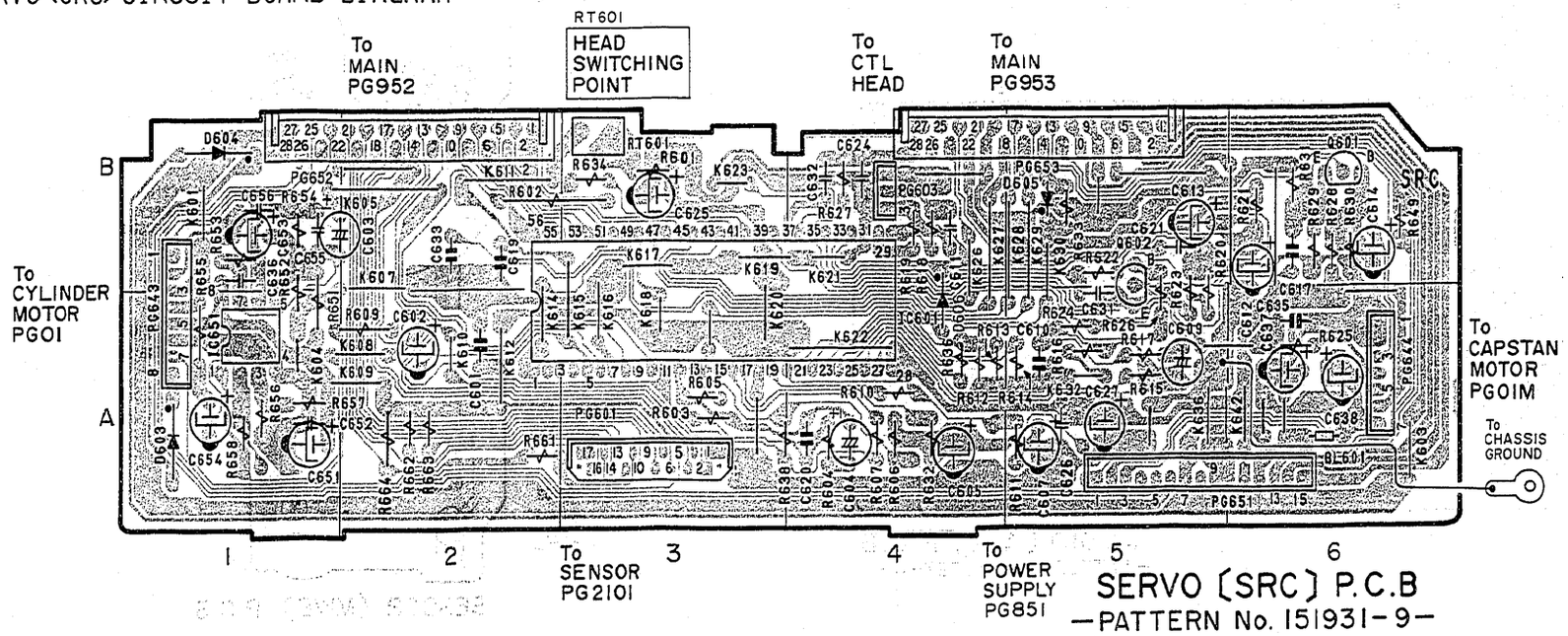
Symbol No.	Parts Location
R	
R601	3B
R602	2B
R603	3A
R604	4A
R605	3A
R606	4A
R607	4A
R609	2A
R610	4A
R611	5A
R612	4A
R613	4A
R614	5A
R615	5A
R616	5A
R617	5A
R618	4B
R619	4B
R620	5A
R621	6B
R622	5B
R623	5A
R624	5A
R625	6A
R626	5A
R627	4B
R628	6B
R629	6B
R630	6B
R631	6B
R632	4A
R633	5B
R634	3B
R636	4A
R638	3A
R649	6B
R651	1A
R652	1A
R653	1B
R654	1B
R655	1A
R656	1A
R657	1A
R658	1A
R661	2A
R662	2A
R663	2A
R664	2A
RT	
RT601	3B

LUMINANCE/CHROMA (WYC) CIRCUIT BOARD DIAGRAM



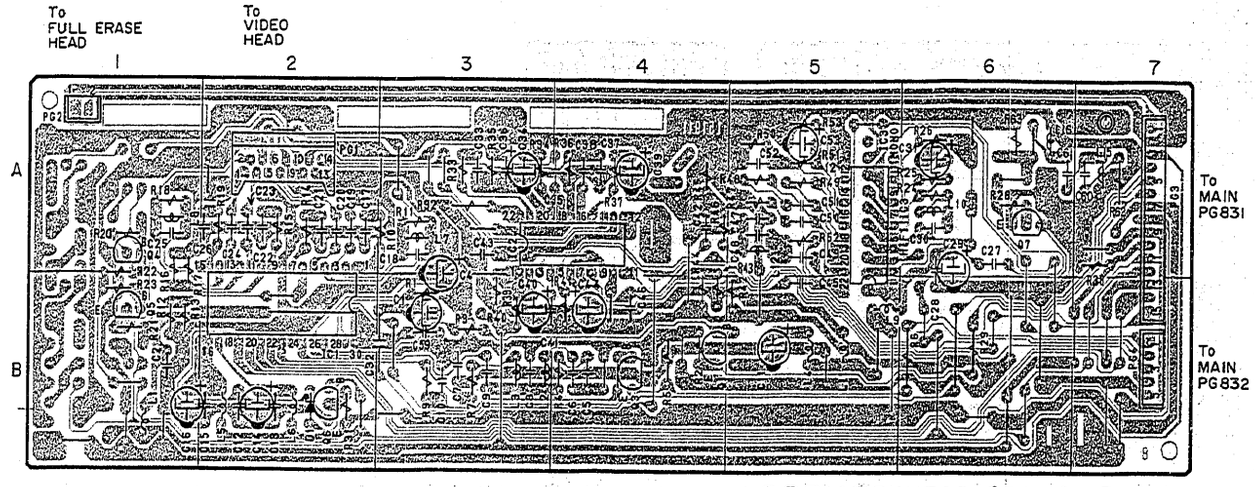
LUMINANCE/CHROMA (WYC) P.C.B
—PATTERN No. 151931-9—

SERVO (SRC) CIRCUIT BOARD DIAGRAM



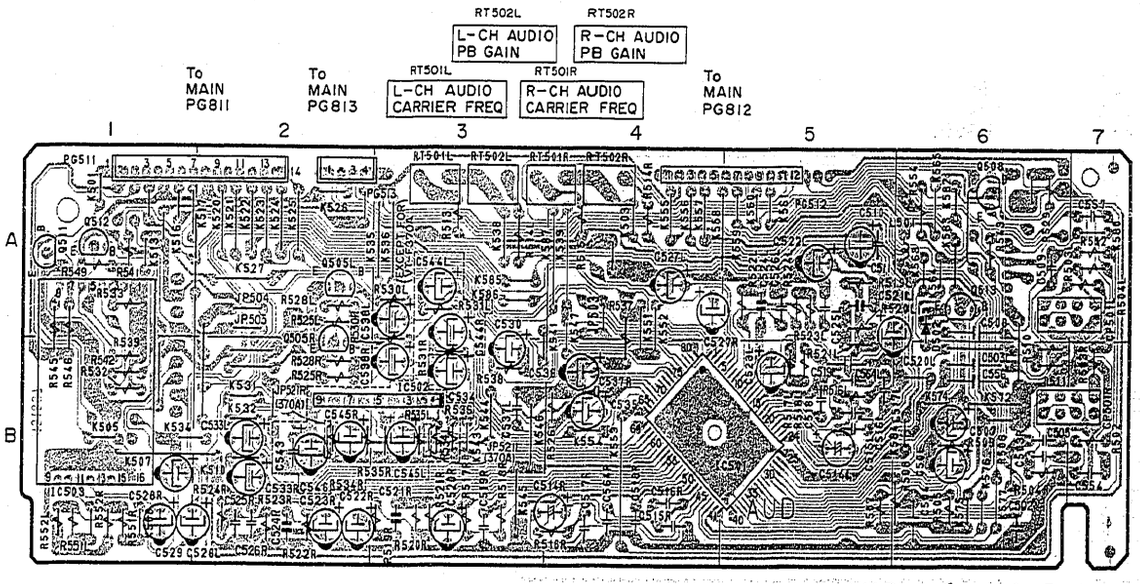
SERVO (SRC) P.C.B
—PATTERN No. 151931-9—

AUDIO (AUD) CIRCUIT BOARD DIAGRAM



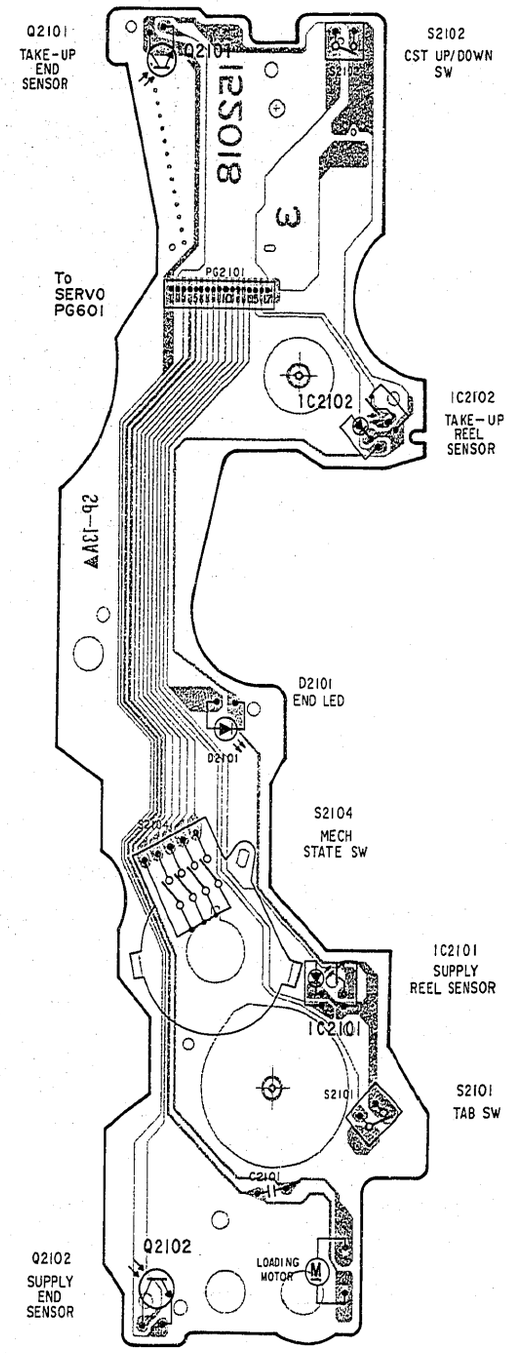
PRE AMP/HEAD (PRE) P.C.B
— PATTERN No. 151911-8 —

PRE AMP/HEAD SW (PRE) CIRCUIT BOARD DIAGRAM



AUDIO (AUD) P.C.B
— PATTERN No. 151897-4 —

SENSOR (MWB) CIRCUIT BOARD DIAGRAM



SENSOR (MWB) P.C.B

IDENTIFICATION OF PARTS LOCATION

PRE AMP/HEAD SW (PRE) P. C. B

Symbol No.	Parts Location
C	
C1	3B
C2	1B
C4	3B
C5	4B
C6	4B
C7	3B
C8	3B
C9	3B
C10	3B
C11	5B
C12	2B
C13	2B
C14	2B
C15	2B
C16	1B
C17	2A
C18	3A
C19	2A
C20	2A
C21	2A
C22	2A
C23	2A
C24	2A
C25	1A
C26	2A
C27	6A
C28	6A
C29	6A
C30	6A
C31	6A
C32	3B
C33	3A
C34	3A
C35	4A
C36	3A
C37	4A
C38	4A
C39	4A
C40	3B
C41	3B
C42	4A
C43	3A
C44	4B
C45	5B
C46	4B
C47	5A
C48	5A
C49	5A
C50	5A
C51	5A
C52	5A
C53	5A
C59	3B
C60	7A

Symbol No.	Parts Location
C61	6A
D	
D1	2B
IC	
IC1	2B
IC2	4A
IC3	5A
L	
L1	1B
L2	3B
L3	3B
L4	5B
L5	2B
L6	2B
L7	3A
L8	1A
L9	5B
L10	6A
L11	5B
L12	5A
L15	7A
L16	6A
PG	
PG1	2A
PG2	1A
PG3	7A
PG4	7B
Q	
Q1	4B
Q3	4B
Q4	1A
Q5	1B
Q6	2B
Q7	6A
R	
R1	3B
R2	4B
R3	3B
R4	4B
R5	4B
R6	6B
R7	3B
R9	3B
R10	3A
R11	3A
R12	1B
R13	1B
R14	2A
R15	2A
R16	1A
R17	1A
R18	1A
R19	2A
R20	1A
R21	1B

Symbol No.	Parts Location
R22	1B
R23	1B
R24	6A
R25	6A
R26	6A
R28	6A
R29	6B
R31	2B
R32	3A
R33	3A
R34	3A
R35	3A
R36	4A
R37	4A
R38	7A
R39	3B
R40	3B
R41	4B
R42	5B
R43	4B
R44	4B
R45	4A
R46	4A
R47	5A
R48	5A
R49	5A
R50	5A
R51	5A
R52	5A
R53	5A
R62	7A
R63	6A

AUDIO (AUD) P. C. B

Symbol No.	Parts Location
C	
C502	6B
C503L	6B
C503R	6B
C504	6B
C505	6B
C506	6B
C507	6B
C508	6A
C509	6A
C510	5A
C511	5A
C514L	5B
C514R	4B
C515L	5B
C515R	4B
C516L	5B
C516R	4B
C517L	5B
C517R	4B
C518L	5B
C518R	4B
C519L	5B
C519R	3B
C520L	6A
C520R	3B
C521L	5A
C521R	3B
C522L	5A
C522R	2B
C523L	5B
C523R	2B
C524L	5A
C524R	2B
C525L	5A
C525R	2B
C526L	5A
C526R	2B
C527L	4A
C527R	4A
C528L	2B
C528R	1B
C529	1B
C530	3B
C533L	2B
C533R	2B
C534	3B
C535	4B
C536	4B
C537L	3B
C537R	4B
C538L	3A
C538R	3B
C543	2B
C544L	3A

Symbol No.	Parts Location
C544R	3A
C545L	3B
C545R	2B
C546	2B
C554	7B
C556	6B
C557	7A
C564L	5B
C564R	4B
CP	
CP501L	7A
CP501R	7B
D	
D502	6A
IC	
IC501	4B
IC502	3B
IC503	1B
JP	
JP503	4A
JP504	2A
JP505	2A
JP521L	3B
JP521R	2B
L	
L501	6A
PG	
PG511	1A
PG512	5A
PG513	2A
Q	
Q505L	2A
Q505R	2B
Q508	6A
Q511	1A
Q512	1A
Q513	6A
R	
R502	7B
R503L	7A
R503R	7B
R504L	7A
R504R	6B
R505	6B
R506	6B
R507	5B
R508	6B
R509	6B
R510	6B
R511	6B
R512	7A
R513	3A
R514L	3A
R514R	4A
R515	4A

Symbol No.	Parts Location
R516L	5B
R516R	4B
R517L	5B
R517R	3B
R518L	5B
R518R	3B
R519L	5A
R519R	3B
R520L	5A
R520R	3B
R521L	5B
R521R	3B
R522L	5A
R522R	2B
R523L	5A
R523R	2B
R524L	5A
R524R	2B
R525L	2A
R525R	2B
R526	4B
R528R	2B
R528L	2A
R529	6A
R530L	3A
R530R	3A
R531L	3A
R531R	3B
R532	1B
R533	1A
R534L	3B
R534R	2B
R535L	3B
R535R	2B
R536	3B
R537	4A
R538	3B
R539	1B
R541	1A
R542	1B
R543	6A
R545	1A
R546	1A
R549	1A
R551L	1B
R551R	1B
R552L	1B
R554	6A
RT	
RT501L	3A
RT501R	4A
RT502L	3A
RT502R	4A

IDENTIFICATION OF PARTS LOCATION

FUNCTION SW (FSW) P. C. B (VT-F372A/F375AW)

Symbol No.	Parts Location
PG	
PG751	2B
PG752	1B
PG753	6A
R	
R750	3A
R751	3A
R752	3A
R753	3A
R754	3A
R755	5A
R756	5A
R757	5A
R758	4A
R759	4A
R760	4A
R768	4A
R769	4A
R770	3A
R771	3A
R772	1B
RM	
RM751	2A
S	
S751	4A
S752	5A
S753	5A
S754	3A
S769	2B
S770	3A

FUNCTION SW (FSW) P. C. B (VT-F370A/F371A)

Symbol No.	Parts Location
D	
D701	3A
D702	2A
JK	
JK701	4A
JK702	3A
PG	
PG751	1B
R	
R701	1B
R702	1B
R703	1B
R704	1B
R705	1B
R706	2B
R707	2B
R708	1A
R709	1A
R710	1A
R711	1A
R712	1A
R713	1A
R714	5A
RM	
RM701	2A
S	
S702	1B
S703	1B
S704	1B
S705	2B
S706	1A
S707	1A
S708	2B
S709	1B

POWER SUPPLY (REG) P. C. B (EXCEPT FOR VT-F375AW)

Symbol No.	Parts Location
C	
C851	3A
C852	3B
C853	3B
C854	3B
C855	3C
C856	3B
C857	4A
C858	3A
C859	4B
C863	3B
C868	4A
C871	4B
C872	4B
C873	4B
C876	4B
D	
D851	3B
D852	3B
D853	3B
D854	3B
D855	3A
D856	3A
D857	3A
D858	3A
D859	3B
D860	3B
D861	3B
D862	3B
D865	4A
F	
F851	1B
F852	1C
F853	2C
IC	
IC851	5A
PG	
PG851	5B
Q	
Q851	4B
Q852	4B
Q855	4B
Q856	4B

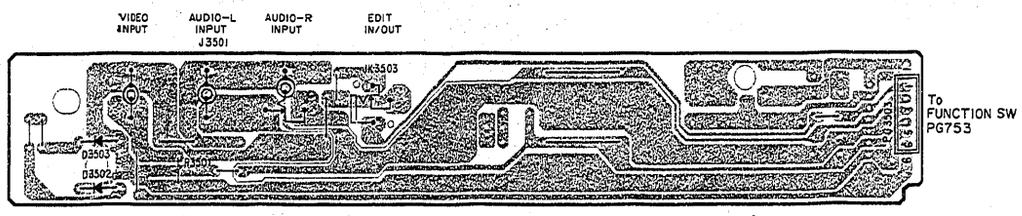
Symbol No.	Parts Location
R	
R851	2A
R853	3C
R854	3C
R855	3B
R856	4B
R857	4B
R859	4B
R863	4B
R865	4B
R867	4B
R868	4B
R869	4A
R871	4B
R872	4B
RF	
RF852	3B
T	
T851	2B
ZD	
ZD851	4B
ZD854	4A

POWER SUPPLY (REG) P. C. B (VT-F375AW)

Symbol No.	Parts Location
C	
C851	4B
C852	4C
C853	4C
C854	5B
C855	5B
C856	5B
C857	6B
C858	5A
C859	5B
C863	4A
C868	5A
C871	4B
C872	5B
C873	6A
C875	6A
C876	6B
D	
D851	4B
D852	4B
D853	4A
D854	4B
D855	4A
D856	4A
D857	4A
D858	4A
D859	4C
D860	4C
D861	4B
D862	5B
D865	5A
D878	6B
D879	4A
D880	4A
F	
F851	1B
F852	1C
F853	3C
IC	
IC851	5B
PG	
PG851	6B

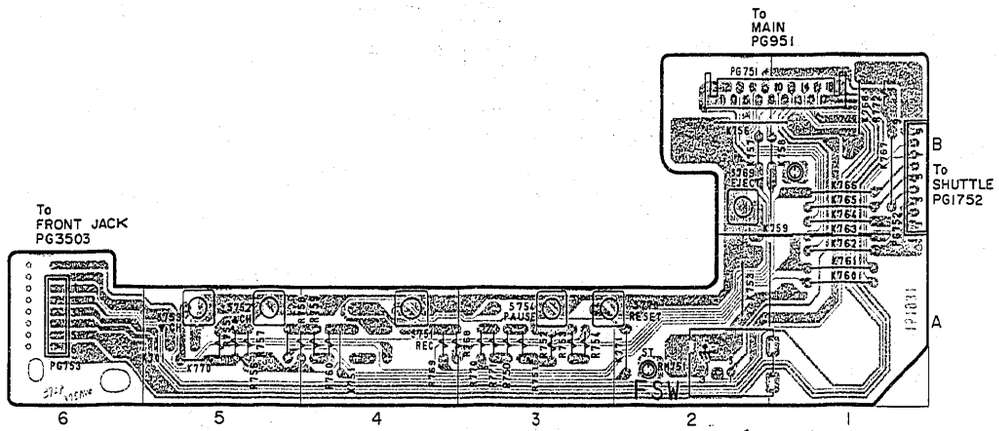
Symbol No.	Parts Location
Q	
Q851	6A
Q852	5A
Q855	5A
Q856	5B
R	
R851	2B
R853	5B
R854	5B
R855	6B
R856	5B
R857	5B
R859	5B
R863	5A
R865	5B
R867	5B
R868	5B
R869	5A
R871	5B
R872	5B
RF	
RF852	4B
S	
S851	1A
SCR	
SCR851	6B
T	
T851	3B
ZD	
ZD851	5B
ZD854	5A
ZD855	6A
ZD856	6A

FRONT JACK (FJK) CIRCUIT BOARD DIAGRAM (VT-F372A/F375AW)



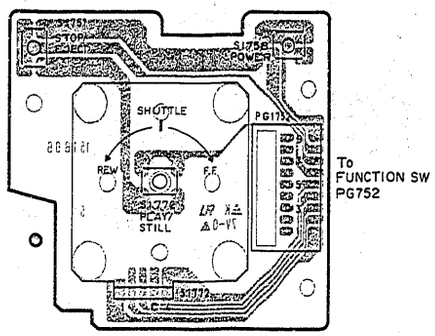
FRONT JACK (FJK) P.C.B
(VT-F372A/F375AW)
— PATTERN No. 151895-6 —

FUNCTION SWITCH (FSW) CIRCUIT BOARD DIAGRAM (VT-F372A/F375AW)



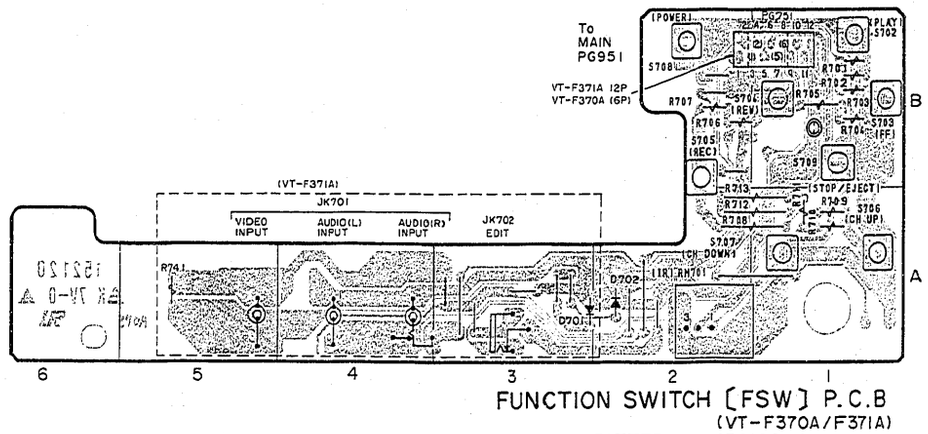
FUNCTION SWITCH (FSW) P.C.B
(VT-F372A/F375AW)
— PATTERN No. 151931-9 —

SHUTTLE (STL) CIRCUIT BOARD DIAGRAM (VT-F372A/F375AW)



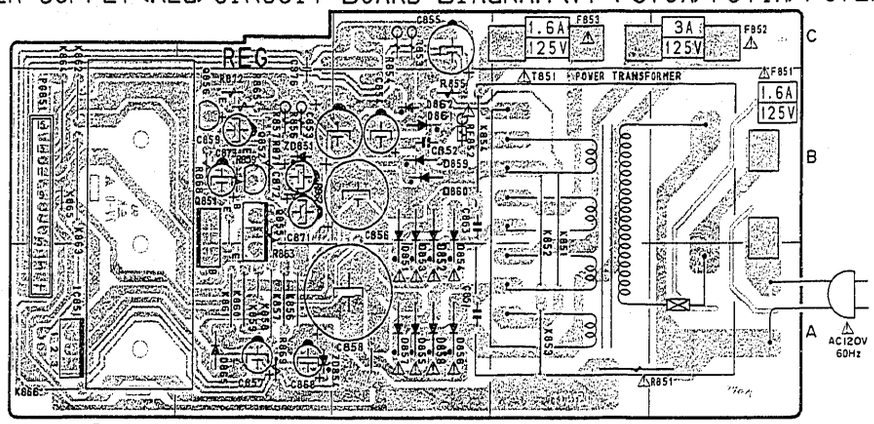
SHUTTLE (STL) P.C.B
(VT-F372A/F375AW)
— PATTERN No. 151896-5 —

FUNCTION SWITCH (FSW) CIRCUIT BOARD DIAGRAM (VT-F370A/F371A)



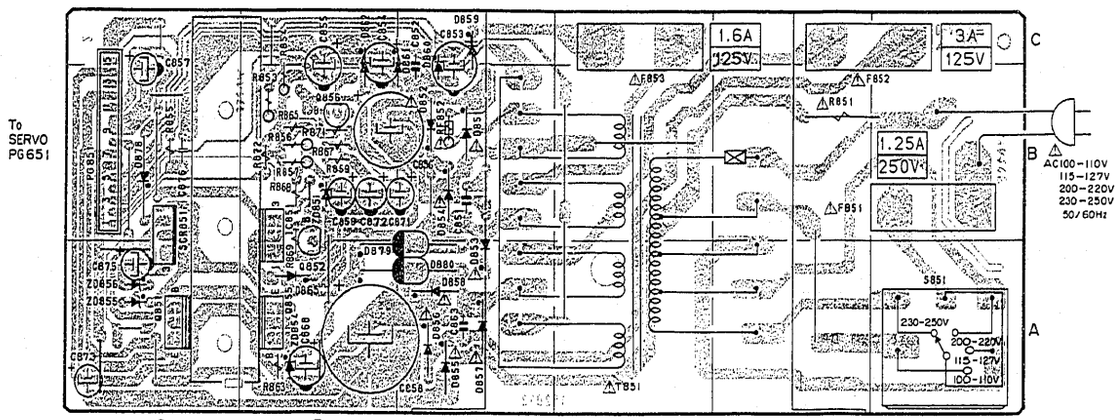
FUNCTION SWITCH (FSW) P.C.B
(VT-F370A/F371A)
— PATTERN No. 152120-2 —

POWER SUPPLY (REG) CIRCUIT BOARD DIAGRAM (VT-F370A/F371A/F372A)



POWER SUPPLY (REG) P.C.B
(VT-F370A/F371A/F372A)
— PATTERN No. 151931-9 —

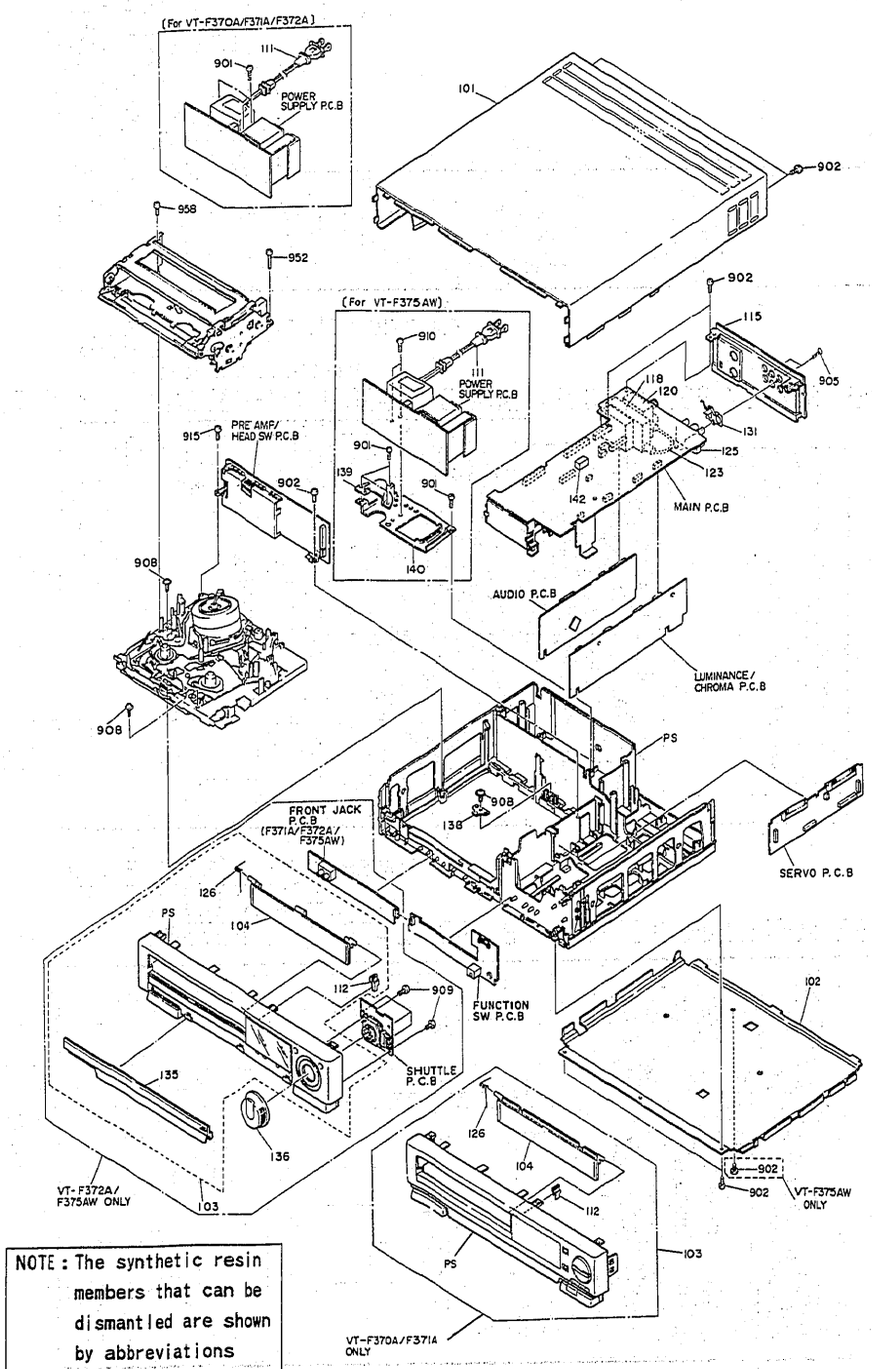
POWER SUPPLY (REG) CIRCUIT BOARD DIAGRAM (VT-F375AW)



POWER SUPPLY (REG) P.C.B
(VT-F375AW)
— PATTERN No. 152033-2 —

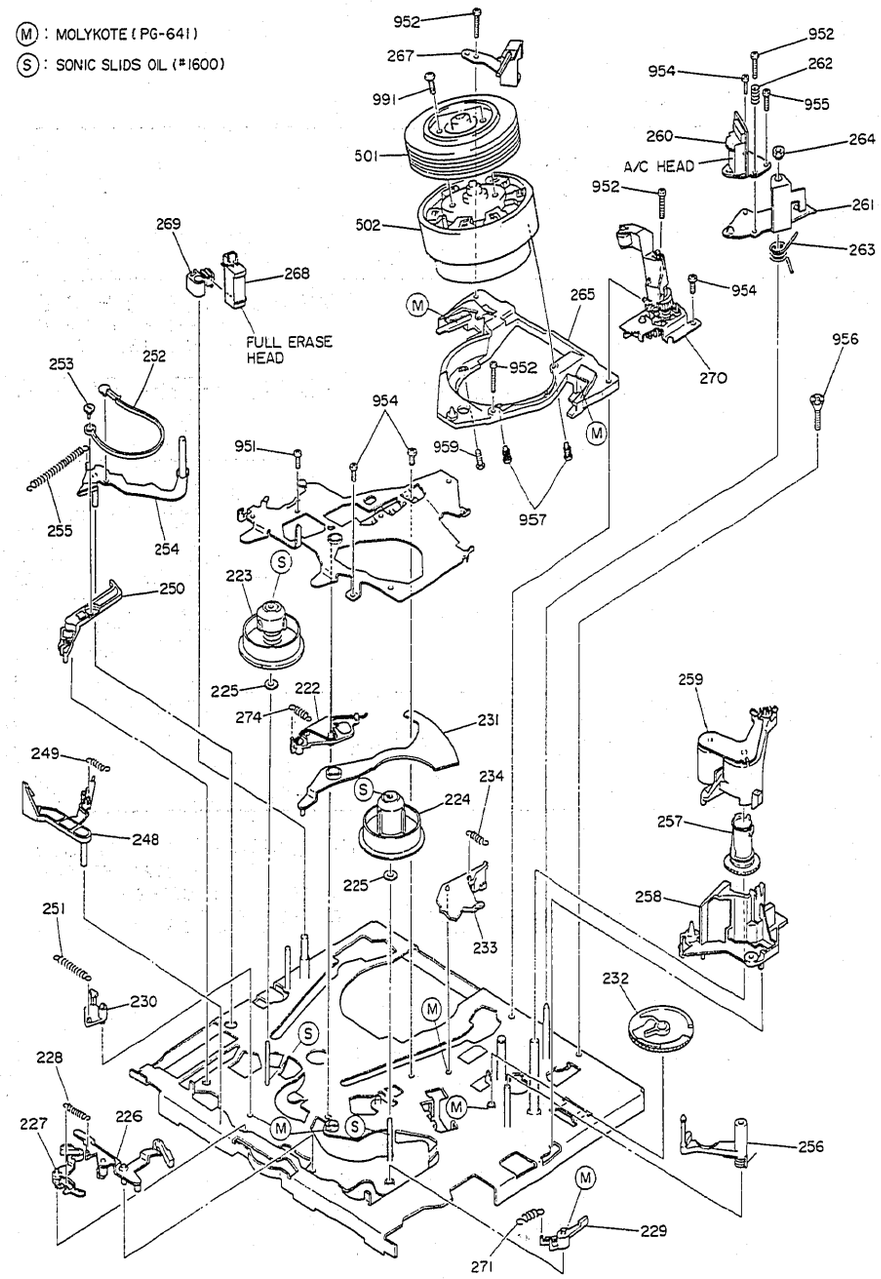
EXPLODED VIEWS

1. CABINET SECTION

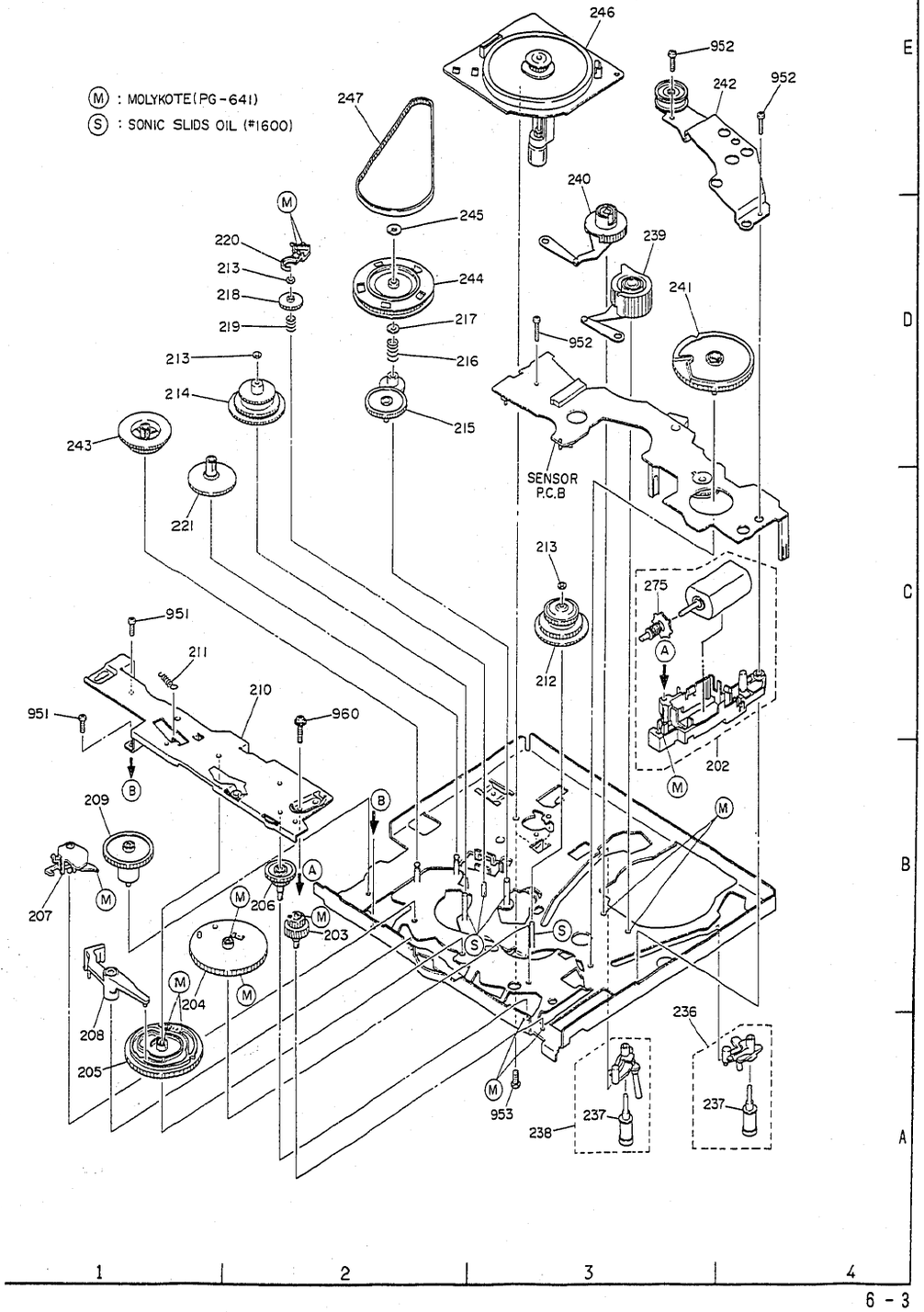


NOTE : The synthetic resin members that can be dismantled are shown by abbreviations using letters.

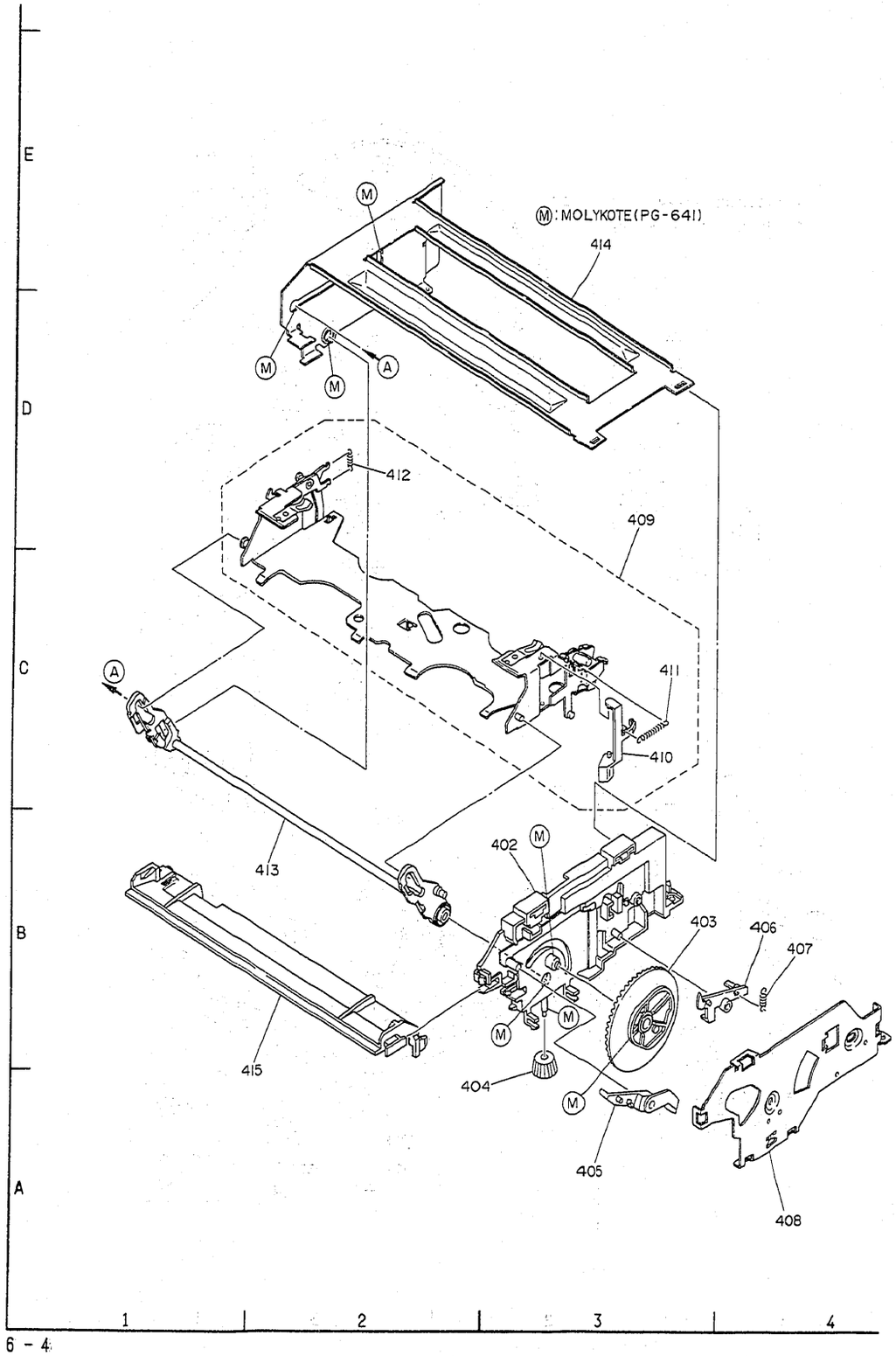
2. CHASSIS-I (TOP VIEW) SECTION



3. CHASSIS-Ⅱ (BOTTOM VIEW) SECTION



4. CASSETTE LOADING MECHANISM SECTION



REPLACEMENT PARTS LIST
ELECTRICAL PARTS LIST

Note:This replacement parts list applies to the following model. Applicable model: VT-F370A
Obtain the components marked with asterisks * in the parts list at your site.

SYMBOL-NO	P-NO	DESCRIPTION
		CAPACITORS
C02	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C05	0890043	CERAMIC DISC 0.01UF+-20% 16V
C06	0890036	CERAMIC DISC 1500PF+-20% 16V
C07	0890045	CERAMIC DISC 0.047UF+80-20% 50V
C08	0890015	CERAMIC DISC 33PF+-50% 50V
C09	0890043	CERAMIC DISC 0.01UF+-20% 16V
C10	0890016	CERAMIC DISC 39PF+-50% 50V
C12	0890029	CERAMIC DISC 390PF+-10% 50V
C13	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C15	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C17	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C18	0890017	CERAMIC DISC 47PF+-5% 50V
C19	0890046	CERAMIC DISC 0.1UF+80-20% 50V
C20	0890046	CERAMIC DISC 0.1UF+80-20% 50V
C21	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C22	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C23	0890046	CERAMIC DISC 0.1UF+80-20% 50V
C24	0890046	CERAMIC DISC 0.1UF+80-20% 50V
C25	0890017	CERAMIC DISC 47PF+-5% 50V
C26	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C27	0890043	CERAMIC DISC 0.01UF+-20% 16V
C28	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C30	0890013	CERAMIC DISC 22PF+-5% 50V
C32	0890045	CERAMIC DISC 0.047UF+80-20% 50V
C33	0890022	CERAMIC DISC 100PF+-10% 50V
C35	0890043	CERAMIC DISC 0.01UF+-20% 16V
C36	0890013	CERAMIC DISC 22PF+-5% 50V
C37	0890013	CERAMIC DISC 22PF+-5% 50V
C38	0890043	CERAMIC DISC 0.01UF+-20% 16V
C41	0890043	CERAMIC DISC 0.01UF+-20% 16V
C42	0890043	CERAMIC DISC 0.01UF+-20% 16V
C43	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C45	0890043	CERAMIC DISC 0.01UF+-20% 16V
C46	0890043	CERAMIC DISC 0.01UF+-20% 16V
C47	0890027	CERAMIC DISC 270PF+-10% 50V
C48	0890018	CERAMIC DISC 56PF+-50% 50V
C49	0890043	CERAMIC DISC 0.01UF+-20% 16V
C50	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C51	0890043	CERAMIC DISC 0.01UF+-20% 16V
C52	0890046	CERAMIC DISC 0.1UF+80-20% 50V
C59	0890046	CERAMIC DISC 0.1UF+80-20% 50V
C60	0890014	CERAMIC DISC 27PF+-50% 50V
C61	0890014	CERAMIC DISC 27PF+-50% 50V
C1405	0208458	CERAMIC DISC 56PF+-5% 50V
C1406	0208458	CERAMIC DISC 56PF+-5% 50V
C1407	0890112	CERAMIC DISC 8PF+-0.5% 50V
C1408	0890114	CERAMIC DISC 10PF+-0.5PF 50V
C1409	0890045	CERAMIC DISC 0.047UF+80-20% 50V
C1442	0890013	CERAMIC DISC 22PF+-5% 50V
C1443	0204333	POLYESTER FILM 470PF+-5% 100V
C1451	0890031	CERAMIC DISC 470PF+-10% 50V
C1461	0880031	MYLAR 1000PF+-10% 50V
C1462	0890038	CERAMIC DISC 3300PF+-20% 16V
C1463	0890031	CERAMIC DISC 470PF+-10% 50V
C1464	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C1465	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C1466	0890031	CERAMIC DISC 470PF+-10% 50V
C1808	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C1809	0890108	CERAMIC DISC 5.0PF+-0.25% 50V
C1810	0890017	CERAMIC DISC 47PF+-5% 50V
C1831L	0890035	CERAMIC DISC 1000PF 50V
C1831R	0890035	CERAMIC DISC 1000PF 50V
C1847	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C1849	0890031	CERAMIC DISC 470PF+-10% 50V
C201	0890073	CERAMIC DISC 82PF+-5% 50V
C202	0890046	CERAMIC DISC 0.1UF+80-20% 50V
C203	0890043	CERAMIC DISC 0.01UF+-20% 16V
C204	0890013	CERAMIC DISC 22PF+-5% 50V
C205	0890013	CERAMIC DISC 22PF+-5% 50V
C206	0890018	CERAMIC DISC 56PF+-50% 50V
C207	0890043	CERAMIC DISC 0.01UF+-20% 16V
C208	0890012	CERAMIC DISC 18PF+-5% 50V
C209	0890011	CERAMIC DISC 15PF+-5% 50V
C210	0890035	CERAMIC DISC 1000PF 50V
C2101	0890045	CERAMIC DISC 0.047UF+80-20% 50V
C211	0890015	CERAMIC DISC 33PF+-50% 50V
C212	0890013	CERAMIC DISC 22PF+-5% 50V
C214	0890073	CERAMIC DISC 82PF+-5% 50V
C215	0208526	CERAMIC DISC 560PF+-5% 50V
C216	0890016	CERAMIC DISC 39PF+-50% 50V
C217	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C218	0890075	CERAMIC DISC 120PF+-5% 50V
C219	0890043	CERAMIC DISC 0.01UF+-20% 16V
C220	0890023	CERAMIC DISC 120PF+-10% 50V
C221	0890016	CERAMIC DISC 39PF+-50% 50V
C222	0890015	CERAMIC DISC 33PF+-50% 50V
C223	0890107	CERAMIC DISC 4PF+-0.25% 50V
C224	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C225	0890043	CERAMIC DISC 0.01UF+-20% 16V
C226	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C227	0880053	POLYESTER FILM 0.047UF+-10% 50V
C233	0890046	CERAMIC DISC 0.1UF+80-20% 50V
C234	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C235	0890046	CERAMIC DISC 0.1UF+80-20% 50V
C236	0890045	CERAMIC DISC 0.047UF+80-20% 50V
C238	0890035	CERAMIC DISC 1000PF 50V
C241	0890035	CERAMIC DISC 1000PF 50V
C242	0890043	CERAMIC DISC 0.01UF+-20% 16V
C243	0890043	CERAMIC DISC 0.01UF+-20% 16V
C244	0890043	CERAMIC DISC 0.01UF+-20% 16V
C245	0890107	CERAMIC DISC 4PF+-0.25% 50V
C246	0890046	CERAMIC DISC 0.1UF+80-20% 50V
C247	0890046	CERAMIC DISC 0.1UF+80-20% 50V
C248	0890045	CERAMIC DISC 0.047UF+80-20% 50V
C249	0890031	CERAMIC DISC 470PF+-10% 50V
C250	0890105	CERAMIC DISC 2.0PF+-0.25% 50V
C251	0890016	CERAMIC DISC 39PF+-50% 50V
C252	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C253	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C254	0890017	CERAMIC DISC 47PF+-5% 50V
C257	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C259	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C260	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C264	0890014	CERAMIC DISC 27PF+-50% 50V
C265	0890013	CERAMIC DISC 22PF+-5% 50V
C266	0890017	CERAMIC DISC 47PF+-5% 50V
C268	0890046	CERAMIC DISC 0.1UF+80-20% 50V
C271	0890046	CERAMIC DISC 0.1UF+80-20% 50V
C272	0890035	CERAMIC DISC 1000PF 50V
C273	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C276	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C277	0890043	CERAMIC DISC 0.01UF+-20% 16V
C279	0890018	CERAMIC DISC 56PF+-50% 50V
C280	0890043	CERAMIC DISC 0.01UF+-20% 16V
C281	0890121	CERAMIC DISC 33PF+-5% 50V
C282	0890016	CERAMIC DISC 39PF+-50% 50V
C284	0890043	CERAMIC DISC 0.01UF+-20% 16V

SYMBOL-NO	P-NO	DESCRIPTION
C285	0890043	CERAMIC DISC 0.01UF+-20% 16V
C286	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C287	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C289	0890038	CERAMIC DISC 3300PF+-20% 16V
C290	0890043	CERAMIC DISC 0.01UF+-20% 16V
C291	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C292	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C293	0890046	CERAMIC DISC 0.1UF+80-20% 50V
C294	0880053	POLYESTER FILM 0.047UF+-10% 50V
C295	0880053	POLYESTER FILM 0.047UF+-10% 50V
C296	0880057	POLYESTER FILM 0.1UF+-10% 50V
C297	0890016	CERAMIC DISC 39PF+-50% 50V
C401	0890032	CERAMIC 560PF+-10% 50V
C403	0890037	CERAMIC DISC 2200PF+-20% 16V
C408	0209641	CERAMIC DISC 10000PF+-10% 16V
C409	0209641	CERAMIC DISC 10000PF+-10% 16V
C412	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C415	0890043	CERAMIC DISC 0.01UF+-20% 16V
C416	0890038	CERAMIC DISC 3300PF+-20% 16V
C419	0268449	MYLAR 0.047UF+-5% 50V
C420	0890026	CERAMIC DISC 220PF+-10% 50V
C424	0209645	CERAMIC DISC 47000PF+-10% 16V
C431	0890036	CERAMIC DISC 1500PF+-20% 16V
C440	0890033	CERAMIC DISC 680PF+-10% 50V
C448	0890037	CERAMIC DISC 2200PF+-20% 16V
C502	0890022	CERAMIC DISC 100PF+-10% 50V
C503L	0890043	CERAMIC DISC 0.01UF+-20% 16V
C503R	0890043	CERAMIC DISC 0.01UF+-20% 16V
C504	0890022	CERAMIC DISC 100PF+-10% 50V
C505	0890028	CERAMIC DISC 330PF+-10% 50V
C508	0890043	CERAMIC DISC 0.01UF+-20% 16V
C509	0890022	CERAMIC DISC 100PF+-10% 50V
C511	0890043	CERAMIC DISC 0.01UF+-20% 16V
C515L	0890035	CERAMIC DISC 1000PF 50V
C515R	0890035	CERAMIC DISC 1000PF 50V
C516L	0890035	CERAMIC DISC 1000PF 50V
C516R	0890035	CERAMIC DISC 1000PF 50V
C517L	0890035	CERAMIC DISC 1000PF 50V
C517R	0890035	CERAMIC DISC 1000PF 50V
C518L	0890038	CERAMIC DISC 3300PF+-20% 16V
C518R	0890038	CERAMIC DISC 3300PF+-20% 16V
C519L	0890043	CERAMIC DISC 0.01UF+-20% 16V
C519R	0890043	CERAMIC DISC 0.01UF+-20% 16V
C521L	0209643	CERAMIC DISC 0.022UF+-10% 16V
C521R	0209643	CERAMIC DISC 0.022UF+-10% 16V
C524L	0209643	CERAMIC DISC 0.022UF+-10% 16V
C524R	0209643	CERAMIC DISC 0.022UF+-10% 16V
C525L	0890041	CERAMIC DISC 6800PF+-20% 16V
C525R	0890041	CERAMIC DISC 6800PF+-20% 16V
C526L	0890036	CERAMIC DISC 1500PF+-20% 16V
C526R	0890036	CERAMIC DISC 1500PF+-20% 16V
C537L	0890036	CERAMIC DISC 1500PF+-20% 16V
C537R	0890036	CERAMIC DISC 1500PF+-20% 16V
C554	0890022	CERAMIC DISC 100PF+-10% 50V
C556	0890022	CERAMIC DISC 100PF+-10% 50V
C557	0890043	CERAMIC DISC 0.01UF+-20% 16V
C564L	0890039	CERAMIC DISC 4700PF+-20% 16V
C564R	0890039	CERAMIC DISC 4700PF+-20% 16V
C601	0880011	POLYESTER FILM 0.015UF+-10% 50V
C609	02561403	CAPACITOR ELECTROLYTIC 0.33UF 50V
C610	0880033	MYLAR 1500PF+-10% 50V
C611	0890035	CERAMIC DISC 1000PF 50V
C617	0880048	MYLAR 0.022UF+-10% 50V
C619	0880018	POLYESTER FILM 0.22UF+-10% 50V
C620	0880013	POLYESTER FILM 0.033UF+-10% 50V
C621	0890026	CERAMIC DISC 220PF+-10% 50V
C624	0890038	CERAMIC DISC 3300PF+-20% 16V
C626	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C631	0890014	CERAMIC DISC 27PF+-50% 50V
C632	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C633	0890031	CERAMIC DISC 470PF+-10% 50V
C635	0880055	MYLAR 0.068UF+-10% 50V
C636	0890034	CERAMIC DISC 820PF+-10% 5V
C652	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C655	0890023	CERAMIC DISC 120PF+-10% 50V
C656	0890028	CERAMIC DISC 330PF+-10% 50V
C801	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C802	0890043	CERAMIC DISC 0.01UF+-20% 16V
C803	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C809	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C811	0890024	CERAMIC DISC 150PF+-10% 50V
C813	0890043	CERAMIC DISC 0.01UF+-20% 16V
C814	0890045	CERAMIC DISC 0.047UF+80-20% 50V
C815	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C851	0890102	CERAMIC DISC 0.022UF+80-20% 50V
C852	0890102	CERAMIC DISC 0.022UF+80-20% 50V
C856	0254045	ELECTROLYTIC 2200UF+-20% 16V
C858	0254046	ELECTROLYTIC 4700UF+-20% 25V
C863	0890102	CERAMIC DISC 0.022UF+80-20% 50V
C876	0880053	POLYESTER FILM 0.047UF+-10% 50V
C902	0890043	CERAMIC DISC 0.01UF+-20% 16V
C906	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C908	0890118	CERAMIC DISC 22PF+-5% 50V
C909	0890118	CERAMIC DISC 22PF+-5% 50V
C913	0890043	CERAMIC DISC 0.01UF+-20% 16V
C914	0890043	CERAMIC DISC 0.01UF+-20% 16V
C915	0890043	CERAMIC DISC 0.01UF+-20% 16V
C916	0890043	CERAMIC DISC 0.01UF+-20% 16V
C917	0890043	CERAMIC DISC 0.01UF+-20% 16V
C919	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C920	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C921	0890037	CERAMIC DISC 2200PF+-20% 16V
C924	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C925	0890045	CERAMIC DISC 0.047UF+80-20% 50V
C926	0890045	CERAMIC DISC 0.047UF+80-20% 50V
C927	0890045	CERAMIC DISC 0.047UF+80-20% 50V
C928	02441753	CERAMIC DISC 47000PF+80-20% 50V
C929	0890045	CERAMIC DISC 0.047UF+80-20% 50V
C936	0890045	CERAMIC DISC 0.047UF+80-20% 50V
C937	0890044	CERAMIC DISC 0.022UF+80-20% 25V

RESISTORS

R01	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R02	0700037	CARBON FILM 560OHM+-5% 1/8W
R03	0700032	CARBON FILM 220 OHM+-5% 1/8W
R04	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R05	0700038	CARBON FILM 680OHM+-5% 1/8W
R06	0700027	CARBON FILM 100 OHM+-5% 1/8W
R07	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R09	0700032	CARBON FILM 220 OHM+-5% 1/8W
R10	0700027	CARBON FILM 100 OHM+-5% 1/8W
R11	0700036	CARBON FILM 470 OHM+-5% 1/8W
R12	0700021	CARBON FILM 33 OHM+-5% 1/8W
R13	0700033	CARBON FILM 2700HM+-5% 1/8W
R14	0700027	CARBON FILM 100 OHM+-5% 1/8W
R15	0700027	CARBON FILM 100 OHM+-5% 1/8W
R16	0700021	CARBON FILM 33 OHM+-5% 1/8W
R17	0700033	CARBON FILM 2700HM+-5% 1/8W
R18	0700036	CARBON FILM 470 OHM+-5% 1/8W

SYMBOL-NO	P-NO	DESCRIPTION
R19	0700027	CARBON FILM 100 OHM+-5% 1/8W
R20	0700024	CARBON FILM 56 OHM+-5% 1/8W
R21	0700024	CARBON FILM 56 OHM+-5% 1/8W
R22	0700054	CARBON FILM 10KOHM+-5% 1/8W
R23	0700054	CARBON FILM 10KOHM+-5% 1/8W
R24	0700042	CARBON FILM 1.2KOHM+-5% 1/8W
R25	0700052	CARBON FILM 6.8KOHM+-5% 1/8W
R26	0700061	CARBON FILM 33KOHM+-5% 1/8W
R29	0700027	CARBON FILM 100 OHM+-5% 1/8W
R31	0700054	CARBON FILM 10KOHM+-5% 1/8W
R32	0700014	CARBON FILM 100HM+-5% 1/8W
R33	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R34	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R35	0700054	CARBON FILM 10KOHM+-5% 1/8W
R36	0700054	CARBON FILM 10KOHM+-5% 1/8W
R37	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R38	0700047	CARBON FILM 3.3KOHM+-5% 1/8W
R39	0700061	CARBON FILM 33KOHM+-5% 1/8W
R40	0700058	CARBON FILM 22KOHM+-5% 1/8W
R41	0700067	CARBON FILM 100KOHM+-5% 1/8W
R42	0700048	CARBON FILM 3.9KOHM+-5% 1/8W
R43	0700053	CARBON FILM 8.2KOHM+-5% 1/8W
R44	0700054	CARBON FILM 10KOHM+-5% 1/8W
R45	0700039	CARBON FILM 820OHM+-5% 1/8W
R46	0700054	CARBON FILM 10KOHM+-5% 1/8W
R47	0700027	CARBON FILM 100 OHM+-5% 1/8W
R48	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R49	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R50	0700063	CARBON FILM 47KOHM+-5% 1/8W
R51	0700054	CARBON FILM 10KOHM+-5% 1/8W
R52	0700061	CARBON FILM 33KOHM+-5% 1/8W
R53	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R62	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R63	0700042	CARBON FILM 1.2KOHM+-5% 1/8W
R1401	0700053	CARBON FILM 8.2KOHM+-5% 1/8W
R1402	0700055	CARBON FILM 12KOHM+-5% 1/8W
R1403	0700027	CARBON FILM 100 OHM+-5% 1/8W
R1411	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R1412	0700043	CARBON FILM 1.5KOHM+-5% 1/8W
R1413	0700069	CARBON FILM 150KOHM+-5% 1/8W
R1414	0700027	CARBON FILM 100 OHM+-5% 1/8W
R1415	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R1441	0101765	RESISTOR 10KOHM+-1% 1/8W
R1442	0101736	METAL FILM 120KOHM+-1% 1/8W
R1443	0700077	CARBON FILM 550KOHM+-5% 1/8W
R1444	0700058	CARBON FILM 22KOHM+-5% 1/8W
R1452	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R1453	0700042	CARBON FILM 1.2KOHM+-5% 1/8W
R1455	0700077	CARBON FILM 550KOHM+-5% 1/8W
R1461	0700053	CARBON FILM 8.2KOHM+-5% 1/8W
R1462	0700027	CARBON FILM 100 OHM+-5% 1/8W
R1463	0700058	CARBON FILM 22KOHM+-5% 1/8W
R1464	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R1465	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R1466	0700051	CARBON FILM 5.6KOHM+-5% 1/8W
R1467	0700057	CARBON FILM 18KOHM+-5% 1/8W
R1468	0700056	CARBON FILM 15KOHM+-5% 1/8W
R1469	0700054	CARBON FILM 10KOHM+-5% 1/8W
R1470	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R1471	0700038	CARBON FILM 6800HM+-5% 1/8W
R1472	0700062	CARBON FILM 39KOHM+-5% 1/8W
R1473	0700062	CARBON FILM 39KOHM+-5% 1/8W
R1474	0700058	CARBON FILM 22KOHM+-5% 1/8W
R1801	0101839	CARBON FILM 3.3KOHM+-5% 1/4W
R1802	0101839	CARBON FILM 3.3KOHM+-5% 1/4W
R1803	0700079	CARBON FILM 820KOHM+-5% 1/8W
R1804	0700061	CARBON FILM 33KOHM+-5% 1/8W
R1805	0700078	CARBON FILM 680KOHM+-5% 1/8W
R1806	0700052	CARBON FILM 6.8KOHM+-5% 1/8W
R1807	0700051	CARBON FILM 5.6KOHM+-5% 1/8W
R1809	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R1810	0700064	CARBON FILM 56KOHM+-5% 1/8W
R1821	0700032	CARBON FILM 220 OHM+-5% 1/8W
R1822	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R1823	0700031	CARBON FILM 1800HM+-5% 1/8W
R1824	0700032	CARBON FILM 220 OHM+-5% 1/8W
R1826	0700025	CARBON FILM 68OHM+-5% 1/8W
R1827	0101400	CARBON FILM 75OHM+-5% 1/8W
R1829	0700027	CARBON FILM 100 OHM+-5% 1/8W
R1831L	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R1831R	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R1841	0700028	CARBON FILM 120OHM+-5% 1/8W
R201	0700034	CARBON FILM 330OHM+-5% 1/8W
R202	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R203	0700043	CARBON FILM 1.5KOHM+-5% 1/8W
R204	0700056	CARBON FILM 15KOHM+-5% 1/8W
R205	0700046	CARBON FILM 2.7KOHM+-5% 1/8W
R206	0700081	CARBON FILM 1.0MOHM+-5% 1/8W
R207	0700037	CARBON FILM 560OHM+-5% 1/8W
R208	0700043	CARBON FILM 1.5KOHM+-5% 1/8W
R209	0700043	CARBON FILM 1.5KOHM+-5% 1/8W
R210	0700052	CARBON FILM 6.8KOHM+-5% 1/8W
R211	0700049	CARBON FILM 4.7KOHM+-5% 1/8W
R212	0700052	CARBON FILM 6.8KOHM+-5% 1/8W
R213	0700042	CARBON FILM 1.2KOHM+-5% 1/8W
R214	0700067	CARBON FILM 100KOHM+-5% 1/8W
R215	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R216	0700043	CARBON FILM 1.5KOHM+-5% 1/8W
R217	0700037	CARBON FILM 560OHM+-5% 1/8W
R218	0700047	CARBON FILM 3.3KOHM+-5% 1/8W
R219	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R220	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R221	0700061	CARBON FILM 33KOHM+-5% 1/8W
R222	0700058	CARBON FILM 22KOHM+-5% 1/8W
R223	0700061	CARBON FILM 33KOHM+-5% 1/8W
R224	0700058	CARBON FILM 22KOHM+-5% 1/8W
R225	0700058	CARBON FILM 22KOHM+-5% 1/8W
R226	0700042	CARBON FILM 1.2KOHM+-5% 1/8W
R227	0700051	CARBON FILM 5.6KOHM+-5% 1/8W
R228	0700043	CARBON FILM 1.5KOHM+-5% 1/8W
R229	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R230	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R231	0700054	CARBON FILM 10KOHM+-5% 1/8W
R232	0700049	CARBON FILM 4.7KOHM+-5% 1/8W
R233	0700052	CARBON FILM 6.8KOHM+-5% 1/8W
R234	0700032	CARBON FILM 220 OHM+-5% 1/8W
R235	0700038	CARBON FILM 680OHM+-5% 1/8W
R236	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R237	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R238	0700033	CARBON FILM 2700HM+-5% 1/8W
R239	0700038	CARBON FILM 680OHM+-5% 1/8W
R240	0700042	CARBON FILM 1.2KOHM+-5% 1/8W
R241	0700081	CARBON FILM 1.0MOHM+-5% 1/8W
R242	0700049	CARBON FILM 4.7KOHM+-5% 1/8W
R243	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R244	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R245	0700047	CARBON FILM 3.3KOHM+-5% 1/8W
R246	0700036	CARBON FILM 470 OHM+-5% 1/8W
R247	0700036	CARBON FILM 470 OHM+-5% 1/8W
R248	0700036	CARBON FILM 470 OHM+-5% 1/8W

SYMBOL-NO	P-NO	DESCRIPTION
R249	0700074	CARBON FILM 330KOHM+-5% 1/8W
R250	0700077	CARBON FILM 560KOHM+-5% 1/8W
R251	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R252	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R253	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R254	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R255	0700043	CARBON FILM 1.5KOHM+-5% 1/8W
R256	0700043	CARBON FILM 1.5KOHM+-5% 1/8W
R259	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R260	0700035	CARBON FILM 390OHM+-5% 1/8W
R261	0700047	CARBON FILM 3.3KOHM+-5% 1/8W
R262	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R263	0700054	CARBON FILM 10KOHM+-5% 1/8W
R264	0700052	CARBON FILM 6.8KOHM+-5% 1/8W
R265	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R270	0700038	CARBON FILM 680OHM+-5% 1/8W
R272	0700054	CARBON FILM 10KOHM+-5% 1/8W
R273	0700054	CARBON FILM 10KOHM+-5% 1/8W
R28	0700042	CARBON FILM 1.2KOHM+-5% 1/8W
R280	0700059	CARBON FILM 27KOHM+-5% 1/8W
R401	0700014	CARBON FILM 10OHM+-5% 1/8W
R402	0700073	CARBON FILM 270KOHM+-5% 1/8W
R403	0700053	CARBON FILM 8.2KOHM+-5% 1/8W
R404	0700031	CARBON FILM 180OHM+-5% 1/8W
R405	0700063	CARBON FILM 47KOHM+-5% 1/8W
R406	0700081	CARBON FILM 1.0MOHM+-5% 1/8W
R407	0700032	CARBON FILM 220 OHM+-5% 1/8W
R408	0700056	CARBON FILM 15KOHM+-5% 1/8W
R409	0700061	CARBON FILM 33KOHM+-5% 1/8W
R410	0700058	CARBON FILM 22KOHM+-5% 1/8W
R411	0700059	CARBON FILM 27KOHM+-5% 1/8W
R412	0700032	CARBON FILM 220 OHM+-5% 1/8W
R413	0700059	CARBON FILM 27KOHM+-5% 1/8W
R414	0700058	CARBON FILM 22KOHM+-5% 1/8W
R415	0101801	CARBON FILM 2.2OHM+-5% 1/4W
R416	0700055	CARBON FILM 12KOHM+-5% 1/8W
R417	0700051	CARBON FILM 5.6KOHM+-5% 1/8W
R418	0700043	CARBON FILM 1.5KOHM+-5% 1/8W
R419	0700054	CARBON FILM 10KOHM+-5% 1/8W
R420	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R421	0700054	CARBON FILM 10KOHM+-5% 1/8W
R422	0700034	CARBON FILM 33OHM+-5% 1/8W
R424	0700054	CARBON FILM 10KOHM+-5% 1/8W
R431	0700049	CARBON FILM 4.7KOHM+-5% 1/8W
R444	0700067	CARBON FILM 100KOHM+-5% 1/8W
R445	0700047	CARBON FILM 3.3KOHM+-5% 1/8W
R446	0700043	CARBON FILM 1.5KOHM+-5% 1/8W
R447	0700059	CARBON FILM 27KOHM+-5% 1/8W
R448	0700054	CARBON FILM 10KOHM+-5% 1/8W
R502	0700047	CARBON FILM 3.3KOHM+-5% 1/8W
R503L	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R503R	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R504L	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R504R	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R505	0700054	CARBON FILM 10KOHM+-5% 1/8W
R506	0700056	CARBON FILM 15KOHM+-5% 1/8W
R507	0700062	CARBON FILM 39KOHM+-5% 1/8W
R508	0700067	CARBON FILM 100KOHM+-5% 1/8W
R509	0700074	CARBON FILM 330KOHM+-5% 1/8W
R510	0700049	CARBON FILM 4.7KOHM+-5% 1/8W
R511	0700053	CARBON FILM 8.2KOHM+-5% 1/8W
R512	0700054	CARBON FILM 10KOHM+-5% 1/8W
R513	0700055	CARBON FILM 12KOHM+-5% 1/8W
R514L	0700058	CARBON FILM 22KOHM+-5% 1/8W
R514R	0700058	CARBON FILM 22KOHM+-5% 1/8W

SYMBOL-NO	P-NO	DESCRIPTION
R515	0101732	METAL FILM 8.2KOHM
R516L	0700067	CARBON FILM 100KOHM+-5% 1/8W
R516R	0700067	CARBON FILM 100KOHM+-5% 1/8W
R517L	0700057	CARBON FILM 18KOHM+-5% 1/8W
R517R	0700057	CARBON FILM 18KOHM+-5% 1/8W
R518L	0700051	CARBON FILM 5.6KOHM+-5% 1/8W
R518R	0700051	CARBON FILM 5.6KOHM+-5% 1/8W
R519L	0700054	CARBON FILM 10KOHM+-5% 1/8W
R519R	0700054	CARBON FILM 10KOHM+-5% 1/8W
R520L	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R520R	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R521L	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R521R	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R522L	0700037	CARBON FILM 560OHM+-5% 1/8W
R522R	0700037	CARBON FILM 560OHM+-5% 1/8W
R523L	0700039	CARBON FILM 820OHM+-5% 1/8W
R523R	0700039	CARBON FILM 820OHM+-5% 1/8W
R524L	0700039	CARBON FILM 820OHM+-5% 1/8W
R524R	0700039	CARBON FILM 820OHM+-5% 1/8W
R525L	0700051	CARBON FILM 5.6KOHM+-5% 1/8W
R525R	0700051	CARBON FILM 5.6KOHM+-5% 1/8W
R526	0700058	CARBON FILM 22KOHM+-5% 1/8W
R528L	0700036	CARBON FILM 470 OHM+-5% 1/8W
R528R	0700036	CARBON FILM 470 OHM+-5% 1/8W
R529	0700063	CARBON FILM 47KOHM+-5% 1/8W
R530L	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R530R	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R532	0700054	CARBON FILM 10KOHM+-5% 1/8W
R533	0700054	CARBON FILM 10KOHM+-5% 1/8W
R537	0700072	CARBON FILM 220KOHM+-5% 1/8W
R538	0700057	CARBON FILM 18KOHM+-5% 1/8W
R539	0700054	CARBON FILM 10KOHM+-5% 1/8W
R541	0700054	CARBON FILM 10KOHM+-5% 1/8W
R542	0700054	CARBON FILM 10KOHM+-5% 1/8W
R543	0700058	CARBON FILM 22KOHM+-5% 1/8W
R545	0700057	CARBON FILM 18KOHM+-5% 1/8W
R546	0700053	CARBON FILM 8.2KOHM+-5% 1/8W
R549	0700063	CARBON FILM 47KOHM+-5% 1/8W
R551L	0700057	CARBON FILM 18KOHM+-5% 1/8W
R551R	0700057	CARBON FILM 18KOHM+-5% 1/8W
R552L	0700057	CARBON FILM 18KOHM+-5% 1/8W
R552R	0700057	CARBON FILM 18KOHM+-5% 1/8W
R554	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R601	0700062	CARBON FILM 39KOHM+-5% 1/8W
R602	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R603	0700081	CARBON FILM 1.0MOHM+-5% 1/8W
R604	0700073	CARBON FILM 270KOHM+-5% 1/8W
R605	0700058	CARBON FILM 22KOHM+-5% 1/8W
R606	0700061	CARBON FILM 33KOHM+-5% 1/8W
R607	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R609	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R610	0700081	CARBON FILM 1.0MOHM+-5% 1/8W
R611	0700062	CARBON FILM 39KOHM+-5% 1/8W
R612	0700068	CARBON FILM 120KOHM+-5% 1/8W
R613	0700065	CARBON FILM 68KOHM+-5% 1/8W
R614	0700057	CARBON FILM 18KOHM+-5% 1/8W
R615	0700065	CARBON FILM 68KOHM+-5% 1/8W
R616	0700081	CARBON FILM 1.0MOHM+-5% 1/8W
R617	0700067	CARBON FILM 100KOHM+-5% 1/8W
R618	0700038	CARBON FILM 680OHM+-5% 1/8W
R619	0700038	CARBON FILM 680OHM+-5% 1/8W
R620	0700072	CARBON FILM 220KOHM+-5% 1/8W
R621	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R622	0700063	CARBON FILM 47KOHM+-5% 1/8W
R623	0700081	CARBON FILM 1.0MOHM+-5% 1/8W

SYMBOL-NO	P-NO	DESCRIPTION
R624	0700049	CARBON FILM 4.7KOHM+-5% 1/8W
R625	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R626	0700063	CARBON FILM 47KOHM+-5% 1/8W
R627	0700049	CARBON FILM 4.7KOHM+-5% 1/8W
R628	0700062	CARBON FILM 39KOHM+-5% 1/8W
R629	0700042	CARBON FILM 1.2KOHM+-5% 1/8W
R630	0700055	CARBON FILM 12KOHM+-5% 1/8W
R631	0700046	CARBON FILM 2.7KOHM+-5% 1/8W
R632	0700081	CARBON FILM 1.0MOHM+-5% 1/8W
R633	0700054	CARBON FILM 10KOHM+-5% 1/8W
R634	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R636	0700051	CARBON FILM 5.6KOHM+-5% 1/8W
R638	0700081	CARBON FILM 1.0MOHM+-5% 1/8W
R649	0700061	CARBON FILM 33KOHM+-5% 1/8W
R651	0700063	CARBON FILM 47KOHM+-5% 1/8W
R652	0700063	CARBON FILM 47KOHM+-5% 1/8W
R653	0700079	CARBON FILM 820KOHM+-5% 1/8W
R654	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R655	0700038	CARBON FILM 680OHM+-5% 1/8W
R656	0700063	CARBON FILM 47KOHM+-5% 1/8W
R657	0700063	CARBON FILM 47KOHM+-5% 1/8W
R658	0700063	CARBON FILM 47KOHM+-5% 1/8W
R661	0700067	CARBON FILM 100KOHM+-5% 1/8W
R662	0700033	CARBON FILM 270OHM+-5% 1/8W
R663	0700031	CARBON FILM 180OHM+-5% 1/8W
R664	0700067	CARBON FILM 100KOHM+-5% 1/8W
R701	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R702	0700039	CARBON FILM 820OHM+-5% 1/8W
R703	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R704	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R705	0700027	CARBON FILM 100 OHM+-5% 1/8W
R706	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R707	0700032	CARBON FILM 220 OHM+-5% 1/8W
R708	0700043	CARBON FILM 1.5KOHM+-5% 1/8W
R709	0700029	CARBON FILM 150 OHM+-5% 1/8W
R710	0700044	CARBON FILM 1.8KOHM+-5% 1/8W
R711	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R712	0700035	CARBON FILM 390OHM+-5% 1/8W
R713	0700047	CARBON FILM 3.3KOHM+-5% 1/8W
R801	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R802	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R803	0700038	CARBON FILM 680OHM+-5% 1/8W
R808	0700052	CARBON FILM 6.8KOHM+-5% 1/8W
R809	0700054	CARBON FILM 10KOHM+-5% 1/8W
R811	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R812	0700054	CARBON FILM 10KOHM+-5% 1/8W
R813	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R814	0700038	CARBON FILM 680OHM+-5% 1/8W
R815	0700062	CARBON FILM 39KOHM+-5% 1/8W
R816	0700046	CARBON FILM 2.7KOHM+-5% 1/8W
R817	0700054	CARBON FILM 10KOHM+-5% 1/8W
R818	0700039	CARBON FILM 820OHM+-5% 1/8W
R827L	0700061	CARBON FILM 33KOHM+-5% 1/8W
R827R	0700061	CARBON FILM 33KOHM+-5% 1/8W
R828L	0700063	CARBON FILM 47KOHM+-5% 1/8W
R828R	0700063	CARBON FILM 47KOHM+-5% 1/8W
R830	0700063	CARBON FILM 47KOHM+-5% 1/8W
R841	0101847	CARBON FILM 15KOHM+-5% 1/8W
R842	0101847	CARBON FILM 15KOHM+-5% 1/8W
⚠R851	0134706	COMPOSITION 3.3MOHM 1/2W
R853	0101838	CARBON FILM 2.7KOHM+-5% 1/4W
R854	0101838	CARBON FILM 2.7KOHM+-5% 1/4W
R855	0700071	CARBON FILM 180KOHM+-5% 1/8W
R856	0101846	CARBON FILM 12KOHM+-5% 1/4W
R857	0101846	CARBON FILM 12KOHM+-5% 1/4W

SYMBOL-NO	P-NO	DESCRIPTION
R859	0700058	CARBON FILM 22KOHM+-5% 1/8W
R863	0700047	CARBON FILM 3.3KOHM+-5% 1/8W
R865	0700058	CARBON FILM 22KOHM+-5% 1/8W
R867	0700058	CARBON FILM 22KOHM+-5% 1/8W
R868	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R869	0700063	CARBON FILM 47KOHM+-5% 1/8W
R871	0700058	CARBON FILM 22KOHM+-5% 1/8W
R872	0700046	CARBON FILM 2.7KOHM+-5% 1/8W
R901	0700027	CARBON FILM 100 OHM+-5% 1/8W
R902	0700027	CARBON FILM 100 OHM+-5% 1/8W
R903	0700054	CARBON FILM 10KOHM+-5% 1/8W
R904	0700054	CARBON FILM 10KOHM+-5% 1/8W
R905	0700054	CARBON FILM 10KOHM+-5% 1/8W
R906	0700054	CARBON FILM 10KOHM+-5% 1/8W
R907	0700054	CARBON FILM 10KOHM+-5% 1/8W
R908	0700054	CARBON FILM 10KOHM+-5% 1/8W
R909	0700054	CARBON FILM 10KOHM+-5% 1/8W
R910	0700054	CARBON FILM 10KOHM+-5% 1/8W
R911	0700054	CARBON FILM 10KOHM+-5% 1/8W
R912	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R915	0101765	RESISTOR 10KOHM+-1% 1/8W
R917	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R918	0700063	CARBON FILM 47KOHM+-5% 1/8W
R919	0700063	CARBON FILM 47KOHM+-5% 1/8W
R920	0700063	CARBON FILM 47KOHM+-5% 1/8W
R921	0700063	CARBON FILM 47KOHM+-5% 1/8W
R922	0700058	CARBON FILM 22KOHM+-5% 1/8W
R923	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R924	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R925	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R926	0700047	CARBON FILM 3.3KOHM+-5% 1/8W
R927	0700047	CARBON FILM 3.3KOHM+-5% 1/8W
R929	0700038	CARBON FILM 680OHM+-5% 1/8W
R930	0700049	CARBON FILM 4.7KOHM+-5% 1/8W
R931	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R932	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R933	0700047	CARBON FILM 3.3KOHM+-5% 1/8W
R934	0700047	CARBON FILM 3.3KOHM+-5% 1/8W
R935	0700049	CARBON FILM 4.7KOHM+-5% 1/8W
R939	0700049	CARBON FILM 4.7KOHM+-5% 1/8W
R941	0700054	CARBON FILM 10KOHM+-5% 1/8W
R942	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R943	0700049	CARBON FILM 4.7KOHM+-5% 1/8W
R945	0101858	CARBON FILM 4.7MOHM+-5% 1/4W
R946	0700072	CARBON FILM 220KOHM+-5% 1/8W
R951	0700052	CARBON FILM 6.8KOHM+-5% 1/8W
R952	0700054	CARBON FILM 10KOHM+-5% 1/8W
R953	0700054	CARBON FILM 10KOHM+-5% 1/8W
R954	0700061	CARBON FILM 33KOHM+-5% 1/8W
R955	0700061	CARBON FILM 33KOHM+-5% 1/8W
R957	0700058	CARBON FILM 22KOHM+-5% 1/8W
R958	0700051	CARBON FILM 5.6KOHM+-5% 1/8W
R960	0700067	CARBON FILM 100KOHM+-5% 1/8W
R961	0700067	CARBON FILM 100KOHM+-5% 1/8W
R962	0700058	CARBON FILM 22KOHM+-5% 1/8W
R964	0700062	CARBON FILM 39KOHM+-5% 1/8W
R965	0700054	CARBON FILM 10KOHM+-5% 1/8W
R966	0700054	CARBON FILM 10KOHM+-5% 1/8W
R967	01704713	FUSE RESISTOR 2.2OHM+-5% 1/4W
R968	0700054	CARBON FILM 10KOHM+-5% 1/8W
R969	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R970	0700054	CARBON FILM 10KOHM+-5% 1/8W
R972	0700066	CARBON FILM 82KOHM+-5% 1/8W
R973	0700066	CARBON FILM 82KOHM+-5% 1/8W
R974	0700048	CARBON FILM 3.9KOHM+-5% 1/8W

SYMBOL-NO	P-NO	DESCRIPTION
R976	0700058	CARBON FILM 22KOHM+-5% 1/8W
R977	0700058	CARBON FILM 22KOHM+-5% 1/8W
R978	0700006	CARBON FILM 2.7 OHM+-5% 1/8W
R980	0700063	CARBON FILM 47KOHM+-5% 1/8W
R982	0700045	CARBON FILM 2.2KOHM+-5% 1/8W
R983	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R984	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R988	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R989	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
R991	0700041	CARBON FILM 1.0KOHM+-5% 1/8W
⚠RF852	0101724	RESISTOR 8.2 OHM 1/4W
RT1801	5030008	SEMI VARIABLE 22KOHM
RT201	5007447	SEMI VARIABLE 10KOHM
RT202	5007435	SEMI VARIABLE 10KOHM
RT203	5007435	SEMI VARIABLE 10KOHM
RT204	5007435	SEMI VARIABLE 10KOHM
RT205	5007435	SEMI VARIABLE 10KOHM
RT231	5030084	TRIMMER 1KOHM
RT251	5030085	TRIMMER 2.2KOHM
RT401	5030012	SEMI VARIABLE 220KOHM
RT501L	5035077	SEMI VARIABLE 10KOHM
RT501R	5035077	SEMI VARIABLE 10KOHM
RT502L	5006239	SEMI VARIABLE 47KOHM
RT502R	5006239	SEMI VARIABLE 47KOHM
RT601	5030092	SEMI VARIABLE 220KOHM
		SEMI-CONDUCTORS
D01	5339131	DIODE 1SS254
D1411	5339131	DIODE 1SS254
D1412	5339131	DIODE 1SS254
D201	5339131	DIODE 1SS254
D202	5339131	DIODE 1SS254
D203	5339131	DIODE 1SS254
D204	5339131	DIODE 1SS254
D205	5339131	DIODE 1SS254
D206	5339131	DIODE 1SS254
D2101	5380933	LED GL451
D502	5339131	DIODE 1SS254
D603	5339231	DIODE 1SR35-100A
D604	5339231	DIODE 1SR35-100A
D605	5339131	DIODE 1SS254
D606	5339131	DIODE 1SS254
D801	5339131	DIODE 1SS254
D811	5339131	DIODE 1SS254
D813	5339131	DIODE 1SS254
D814	5339131	DIODE 1SS254
D815	5339131	DIODE 1SS254
D816	5339131	DIODE 1SS254
⚠D851	5339381	DIODE ERA81-004
⚠D852	5339381	DIODE ERA81-004
⚠D853	5339381	DIODE ERA81-004
⚠D854	5339381	DIODE ERA81-004
⚠D855	5339381	DIODE ERA81-004
⚠D856	5339381	DIODE ERA81-004
⚠D857	5339381	DIODE ERA81-004
⚠D858	5339381	DIODE ERA81-004
D859	5339171	DIODE 1SS130
D860	5339131	DIODE 1SS254
D861	5339171	DIODE 1SS130
D862	5339131	DIODE 1SS254
D865	5339551	DIODE SS1J4
D906	5339131	DIODE 1SS254
D913	5339131	DIODE 1SS254
D914	5339551	DIODE SS1J4
D915	5339131	DIODE 1SS254
D916	5339131	DIODE 1SS254
D917	5339131	DIODE 1SS254
D919	5339551	DIODE SS1J4
IC01	1362321	IC HA118162NT
IC02	1361751	IC BA7740S
IC03	1361731	IC BA7047S
IC1401	1340781	IC M35010-012SP
IC1441	1361932	IC BA7046A
IC1841	1360031	IC NJM2235S
IC201	1362232	IC HA118158NT
IC203	1362261	IC CXL5507P
IC2101	5327521	PHOTO TRANSISTOR SPI-315-C
IC2102	5327521	PHOTO TRANSISTOR SPI-315-C
IC401	1341472	IC LA7297
IC501	1351502	IC BA7703KP
IC503	1390771	PWB ASSY HTS7332
IC601	1345871	IC HD49781NT
IC651	5350601	IC NJM4558D
IC851	1341511	IC M5F7805L
IC901	1366262	IC M38184M8-114FP
IC902	1345903	IC PST600G
IC904	5300794	IC BA6209U4
Q01	5327063	TRANSISTOR 2SC1740S
Q03	5327063	TRANSISTOR 2SC1740S
Q04	5327063	TRANSISTOR 2SC1740S
Q05	5327063	TRANSISTOR 2SC1740S
Q06	5327073	TRANSISTOR DTC144ES
Q07	5327073	TRANSISTOR DTC144ES
Q1411	5327063	TRANSISTOR 2SC1740S
Q1412	5327063	TRANSISTOR 2SC1740S
Q1413	5327063	TRANSISTOR 2SC1740S
Q1461	5327063	TRANSISTOR 2SC1740S
Q1462	5327063	TRANSISTOR 2SC1740S
Q1463	1320012	TRANSISTOR 2SA933 (S, R)
Q1464	5327063	TRANSISTOR 2SC1740S
Q1465	5327073	TRANSISTOR DTC144ES
Q1466	5327073	TRANSISTOR DTC144ES
Q1801	5327061	TRANSISTOR 2SC1740S-ST
Q1802	5327073	TRANSISTOR DTC144ES
Q1821	5327021	TRANSISTOR 2SA844CD
Q1822	5327031	TRANSISTOR 2SA673C
Q201	5327073	TRANSISTOR DTC144ES
Q202	5327073	TRANSISTOR DTC144ES
Q203	5327073	TRANSISTOR DTC144ES
Q204	5327063	TRANSISTOR 2SC1740S
Q205	5327073	TRANSISTOR DTC144ES
Q206	5327021	TRANSISTOR 2SA844CD
Q207	5327063	TRANSISTOR 2SC1740S
Q208	5327073	TRANSISTOR DTC144ES
Q210	5327063	TRANSISTOR 2SC1740S
Q2101	5324661	PHOTO TRANSISTOR PT-483F1H
Q2102	5324661	PHOTO TRANSISTOR PT-483F1H
Q211	5327063	TRANSISTOR 2SC1740S
Q212	5327073	TRANSISTOR DTC144ES
Q213	5327021	TRANSISTOR 2SA844CD
Q215	5327063	TRANSISTOR 2SC1740S
Q216	5327073	TRANSISTOR DTC144ES
Q217	5327063	TRANSISTOR 2SC1740S
Q218	5327063	TRANSISTOR 2SC1740S
Q220	5327073	TRANSISTOR DTC144ES
Q401	5327101	TRANSISTOR 2SC3553(B/C)
Q403	5327073	TRANSISTOR DTC144ES
Q404	5327091	TRANSISTER 2SD1504E
Q505L	5327063	TRANSISTOR 2SC1740S

SYMBOL-NO	P-NO	DESCRIPTION
Q505R	5327063	TRANSISTOR 2SC1740S
Q508	5327063	TRANSISTOR 2SC1740S
Q511	5327073	TRANSISTOR DTC144ES
Q512	5327073	TRANSISTOR DTC144ES
Q513	5327074	TRANSISTOR DTA144ES-T
Q601	5327063	TRANSISTOR 2SC1740S
Q602	5327063	TRANSISTOR 2SC1740S
Q801	5327061	TRANSISTOR 2SC1740S-ST
Q811	5327073	TRANSISTOR DTC144ES
Q812	5327151	TRANSISTOR 2SA952-ML2
Q816	5327031	TRANSISTOR 2SA673C
Q841	5327073	TRANSISTOR DTC144ES
Q843	1321341	TRANSISTOR 2SD1765
Q851	1321341	TRANSISTOR 2SD1765
Q852	5327063	TRANSISTOR 2SC1740S
Q855	1321341	TRANSISTOR 2SD1765
Q856	5327021	TRANSISTOR 2SA844CD
Q902	5327061	TRANSISTOR 2SC1740S-ST
QF841	5721946	IC PROTECTOR(N15)
RM701	1388911	LIGHT DETECTING UNITGP1U581X
ZD1801	53392883	DIODE HZS30-3
ZD841	5339268	DIODE HZS11B2
ZD851	5339255	DIODE HZS12-C3T
ZD854	5339274	DIODE HZS15-3
ZD901	5339571	DIODE UTZ6.2B
ZD903	5339462	ZENER DIODE HZS12A1
		TRANSFORMERS
T401	5261531	COIL
⚠T851	5214361	TRANSFORMER, POWER
		COILS
L01	0770057	CHOKE COIL 100UH+-5%
L02	5159149	CHOKE COIL 47UH
L03	5159148	CHOKE COIL 39UH
L04	0770057	CHOKE COIL 100UH+-5%
L05	0770057	CHOKE COIL 100UH+-5%
L06	0770057	CHOKE COIL 100UH+-5%
L07	5159154	CHOKE COIL 100UH
L08	5159154	CHOKE COIL 100UH
L09	0770057	CHOKE COIL 100UH+-5%
L10	5159148	CHOKE COIL 39UH
L11	0770057	CHOKE COIL 100UH+-5%
L12	5159158	CHOKE COIL 220UH
L15	5159147	CHOKE COIL 33UH
L16	5159147	CHOKE COIL 33UH
L1401	0770057	CHOKE COIL 100UH+-5%
L1402	5159141	CHOKE COIL 10UH
L1441	0770057	CHOKE COIL 100UH+-5%
L1801	0770057	CHOKE COIL 100UH+-5%
L1802	5121581	CHOKE COIL 100UH
L1803	5121581	CHOKE COIL 100UH
L1821	0770057	CHOKE COIL 100UH+-5%
L1822	0770031	CHOKE COIL 1.0UH
L1841	0770057	CHOKE COIL 100UH+-5%
L201	5159155	CHOKE COIL 120UH+-10%
L202	5159145	CHOKE COIL 22UH
L204	5159138	CHOKE COIL 6.8UH
L205	5159147	CHOKE COIL 33UH
L207	5159141	CHOKE COIL 10UH
L208	5159152	CHOKE COIL 68UH
L209	5159147	CHOKE COIL 33UH
L210	5159149	CHOKE COIL 47UH
L211	0770057	CHOKE COIL 100UH+-5%
L212	5159141	CHOKE COIL 10UH
L213	0770057	CHOKE COIL 100UH+-5%
L214	0770057	CHOKE COIL 100UH+-5%
L216	5159152	CHOKE COIL 68UH
L217	0770057	CHOKE COIL 100UH+-5%
L220	0770057	CHOKE COIL 100UH+-5%
L221	0770069	CHOKE COIL 820UH+-5%
L223	5159149	CHOKE COIL 47UH
L224	5159158	CHOKE COIL 220UH
L225	5159158	CHOKE COIL 220UH
L226	5159142	CHOKE COIL 12UH
L401	5159114	COIL 15MH
L402	0770061	CHOKE COIL 180 UH
L501	0770057	CHOKE COIL 100UH+-5%
L808	0770057	CHOKE COIL 100UH+-5%
L901	5121581	CHOKE COIL 100UH
		CRYSTALS
X201	5779061	CRYSTAL
X901	5779111	CRYSTAL
X902	5780791	CRYSTAL
*X1401	558312	CRYSTAL
		MISCELLANEOUS
BL601	5272378	LC FILTER
BL901	5272378	LC FILTER
CP201	5165271	LOW PASS FILTER
CP202	5163574	FILTER, BAND PASS
CP203	5165053	LC FILTER
*CP204	5165401	FILTER
CP205	5163591	BAND PASS FILTER
CP208	5165281	HIGHT PASS FILTER
CP501L	5163101	BAND PASS FILTER
CP501R	5163102	BAND PASS FILTER
DG901	5315401	FLUORESCENT INDICATOR TUBU
DL201	5786421	DELAY LINE
⚠F851	5722651	FUSE 1.6A
⚠F852	5721983	FUSE 3A
⚠F853	5722651	FUSE 1.6A
S2101	5635631	SWITCH
S2102	5635331	SWITCH
S2104	5610891	SWITCH
S702	5634884	SWITCH
S703	5634884	SWITCH
S704	5634884	SWITCH
S705	5634884	SWITCH
S706	5634884	SWITCH
S707	5634884	SWITCH
S708	5634884	SWITCH
S709	5634884	SWITCH

MECHANICAL PARTS LIST

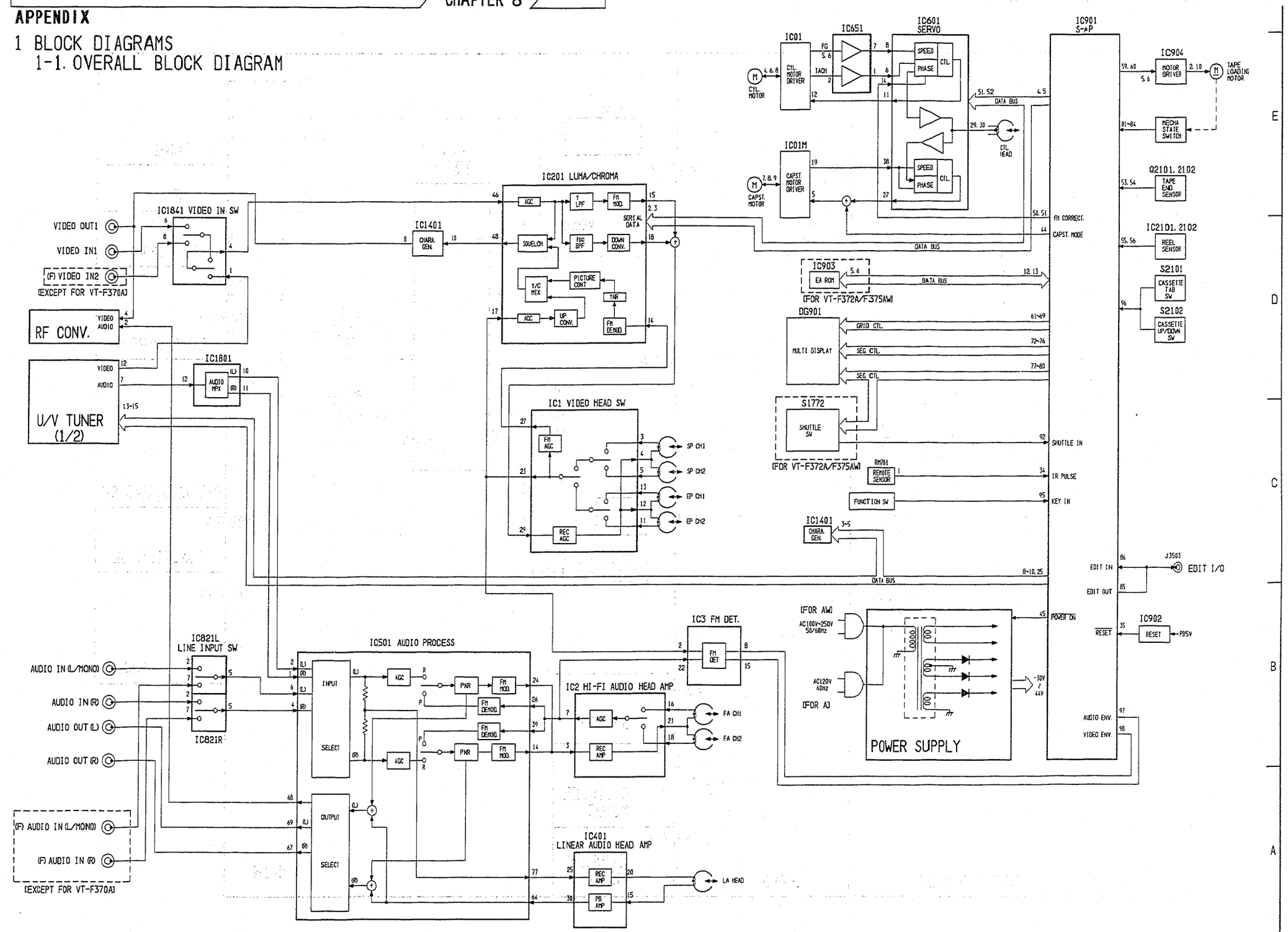
Note:This replacement parts list applies to the following model. Applicable model: VT-F370A
Obtain the components marked with asterisks * in the parts list at your site.

SYMBOL-NO	P-NO	DESCRIPTION
		FOR FINAL ASSEMBLY
101	6009461	COVER, TOP
102	6009471	COVER, BOTTOM
*103	4725442	PANEL, FRONT
*104	4725401	DOOR, CASSETTE
△111	5850753	CORD, POWER
112	4590321	STOPPER, DOOR
*115	4722917	PANEL, REAR
118	5582191	TUNER IF UNIT
120	5587851	CONVERTOR, RF
*123	5886339	CABLE
*125	5671869	PLATE, JACK
126	6551851	SPRING, DOOR
131	4898262	PLATE
138	7429641	BRACKET
142	6562924	RUBBER
202	6500761	MOTOR, LOADING
203	6441371	GEAR
204	6441392	GEAR
205	6441402	GEAR
206	6441381	GEAR
207	6823133	ARM
208	6823171	ARM, OPERATION
209	6441421	GEAR
210	6500332	PLATE
211	6558551	SPRING
*212	6405182	GEAR
213	7788341	WASHER
214	6405191	GEAR
215	6401445	ARM
216	6522979	SPRING
217	6500841	WASHER
218	6441433	GEAR, CHANGE
219	6522978	SPRING
220	6823183	ARM
221	6441411	GEAR
222	6823314	ARM
223	6416631	REEL, TABLE(S)
224	6416651	REEL, TABLE(T)
225	7789126	WASHER
226	6823194	ARM, BRAKE(R)
227	6823228	ARM, BRAKE(L)
228	6318613	SPRING
229	6823271	BRAKE
230	6823261	BRAKE
231	6500412	ARM
232	6823251	GEAR
233	6823292	BRAKE
234	6558452	SPRING
236	6638941	BASE, GUIDE ROLLER(IN)
237	4583122	GUIDE ROLLER
238	6638952	BASE, GUIDE ROLLER(OUT)
239	6500504	GEAR, LOADING(L)
240	6500463	GEAR, LOADING(R)
241	6823536	GEAR, MODE
242	6500548	PLATE
243	6823541	GEAR
244	6823331	PULLY, TAKE UP
245	6500841	WASHER
246	1470083	DC MOTOR
247	6359061	BELT
248	6823422	ARM
249	6553361	SPRING
250	6823435	ARM
251	6553301	SPRING
252	6823473	BAND, TENTION
253	6823511	SHAFT
254	6500683	ARM, TENTION
255	6553352	SPRING
256	6638935	ARM
257	6823521	GEAR, CAM
258	6823445	BRACKET
259	6500431	ROLLER, PRESSURE
260	5434151	HEAD, AUDIO CONTROL
261	6500592	BASE, HEAD
262	6304906	SPRING
263	6553151	SPRING
264	7785673	NUT
265	6638903	BASE, CYLINDER
267	5794062	BRUSH
268	5423071	HEAD, FULL ERASE
269	6823462	BASE, HEAD
270	6500701	BRACKET
271	6558502	SPRING
274	6320576	SPRING
275	6816211	WORM
402	6823612	SPRING
403	6823621	GEAR
404	6823631	GEAR
405	6823641	ARM
406	6823652	ARM
407	6558531	SPRING
408	6500612	BRACKET
409	6500622	HOLDER
410	6823691	ARM
411	6558541	SPRING
412	6558561	SPRING
413	6823662	ARM
414	6500671	BRACKET
415	6823701	HOLDER
501	5436582	CYLINDER UPPER(CY-G6N3)
502	5436592	CYLINDER LOWER CY-G6N3)
901	8699410	SCREW(3X10)
902	8699412	SCREW (3X12) BLACK
905	7781582	FALT SCREW-3MMDX10MM(BLACK)
908	7781138	SCREW(3X10BT)
915	0671305	DT SCREW-2.6MMDX5MM
951	0711304	SCREW(2.6X4)
952	0711312	PAN HEAD SCREW - 2.6MMD X 12MM
953	8691306	BT SCREW 2.6MM
954	0711306	PAN HEAD SCREW-2.6MMDX6MM
955	7773741	SCREW
956	45281813	SCREW
957	7775582	SCREW
958	7773761	SCREW
959	8741408	SCREW (B3X8)
960	8650914	SCREW(2.6X14)
991	7784131	SCREW (3X8)
		FOR ACCESSARIES
	5616491	REMOTE HAND SET
	5861141	VCR COAXIAL RF CABLE

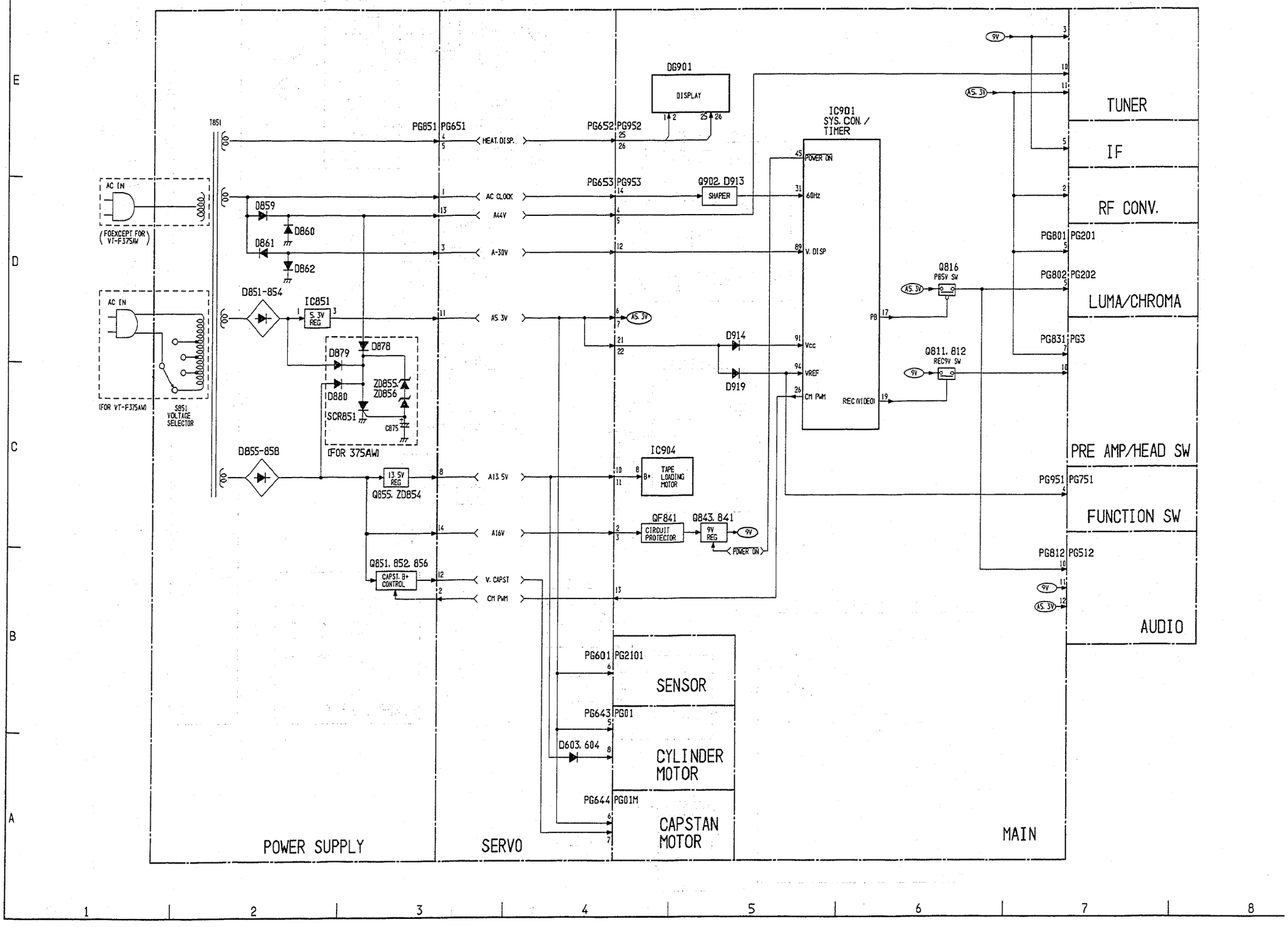
APPENDIX

1 BLOCK DIAGRAMS

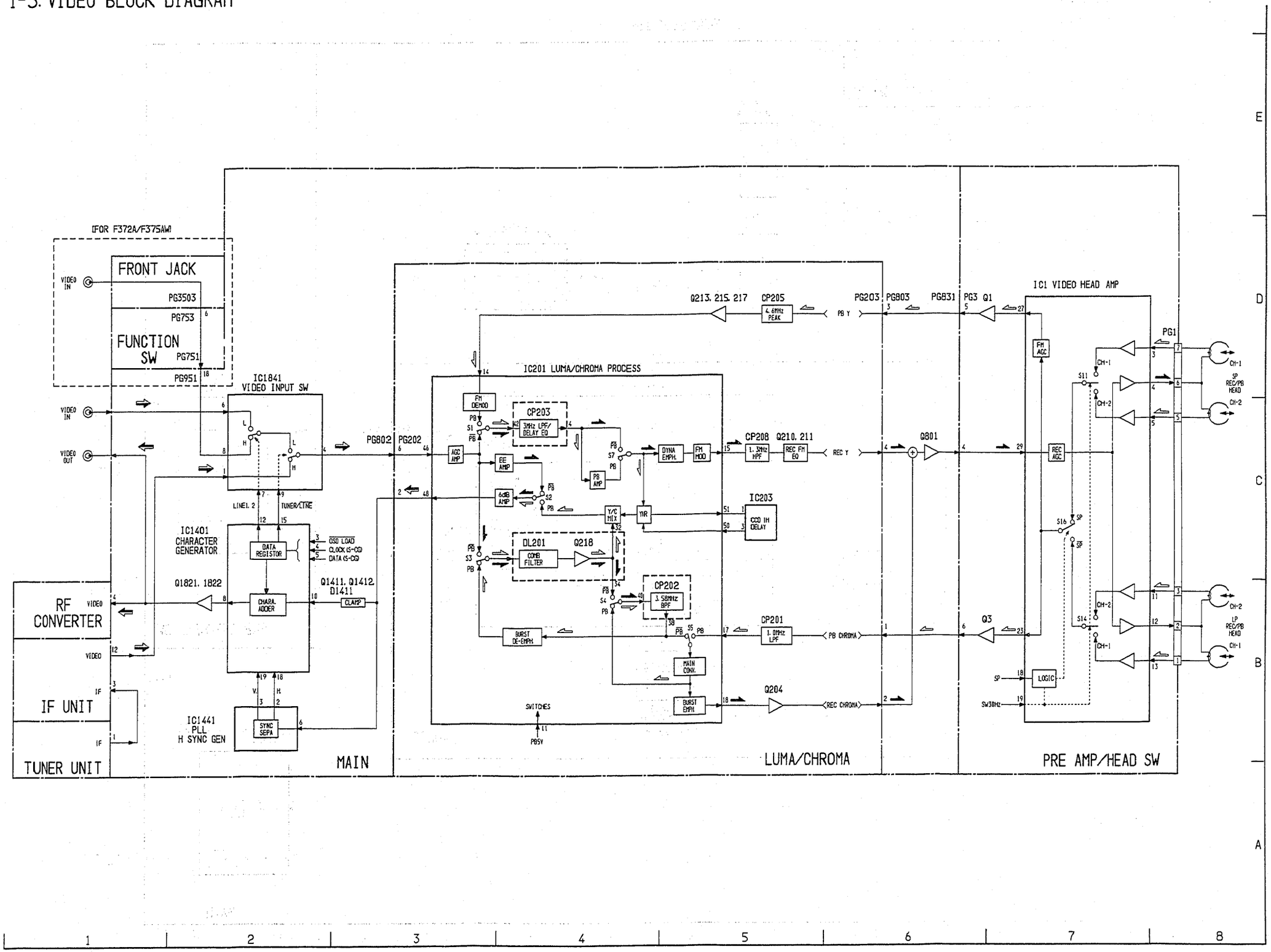
1-1. OVERALL BLOCK DIAGRAM



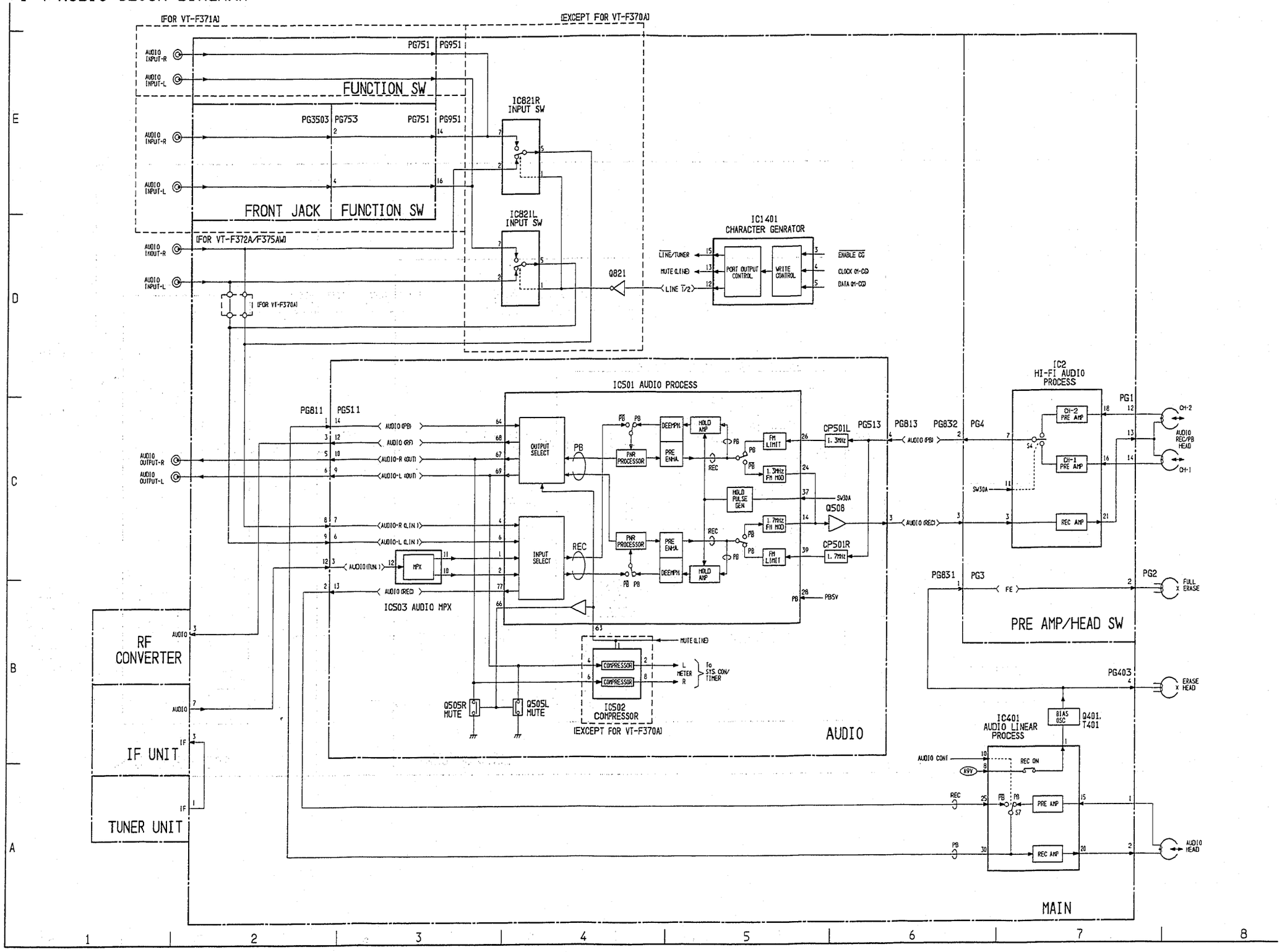
1-2. POWER SUPPLY BLOCK DIAGRAM



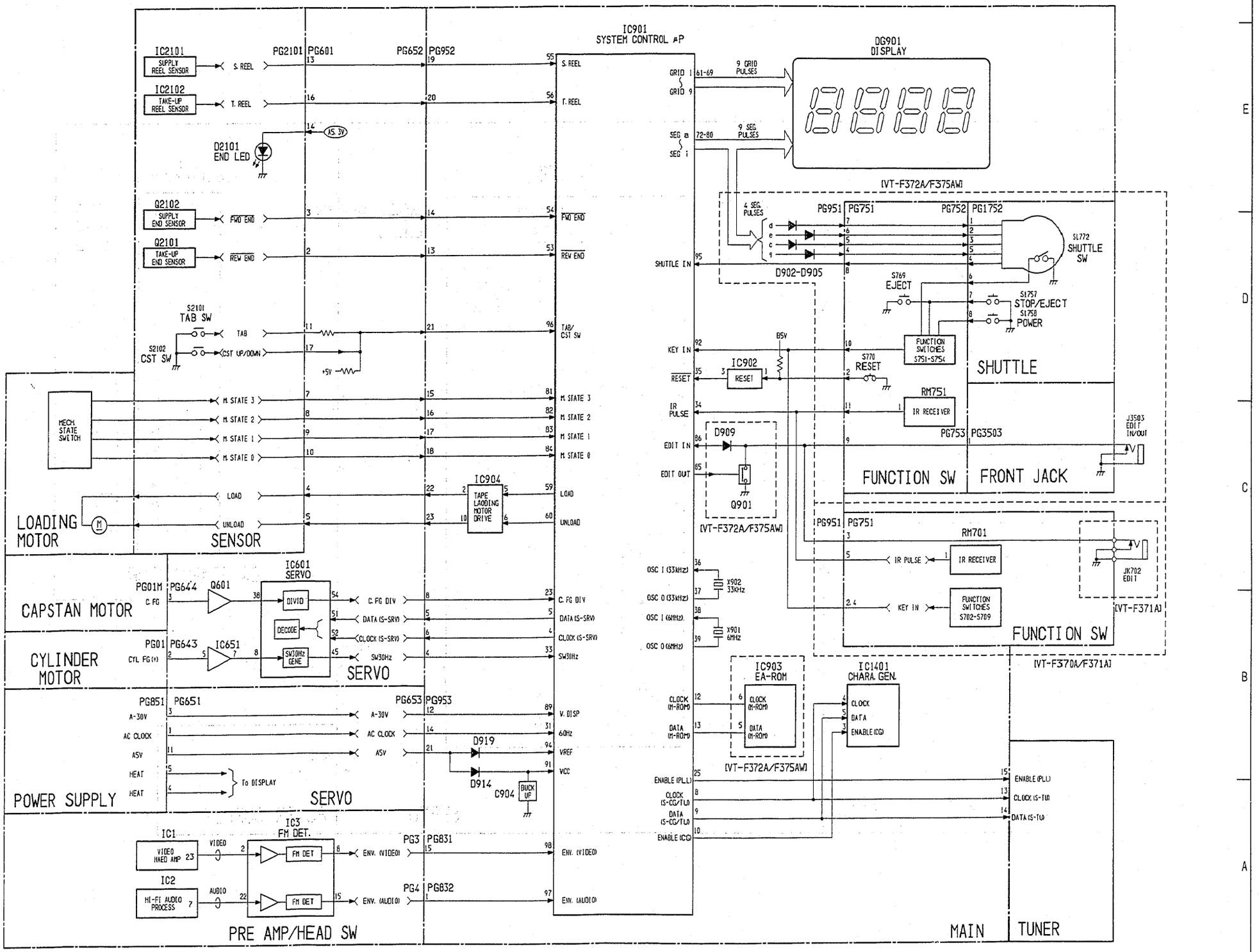
1-3. VIDEO BLOCK DIAGRAM



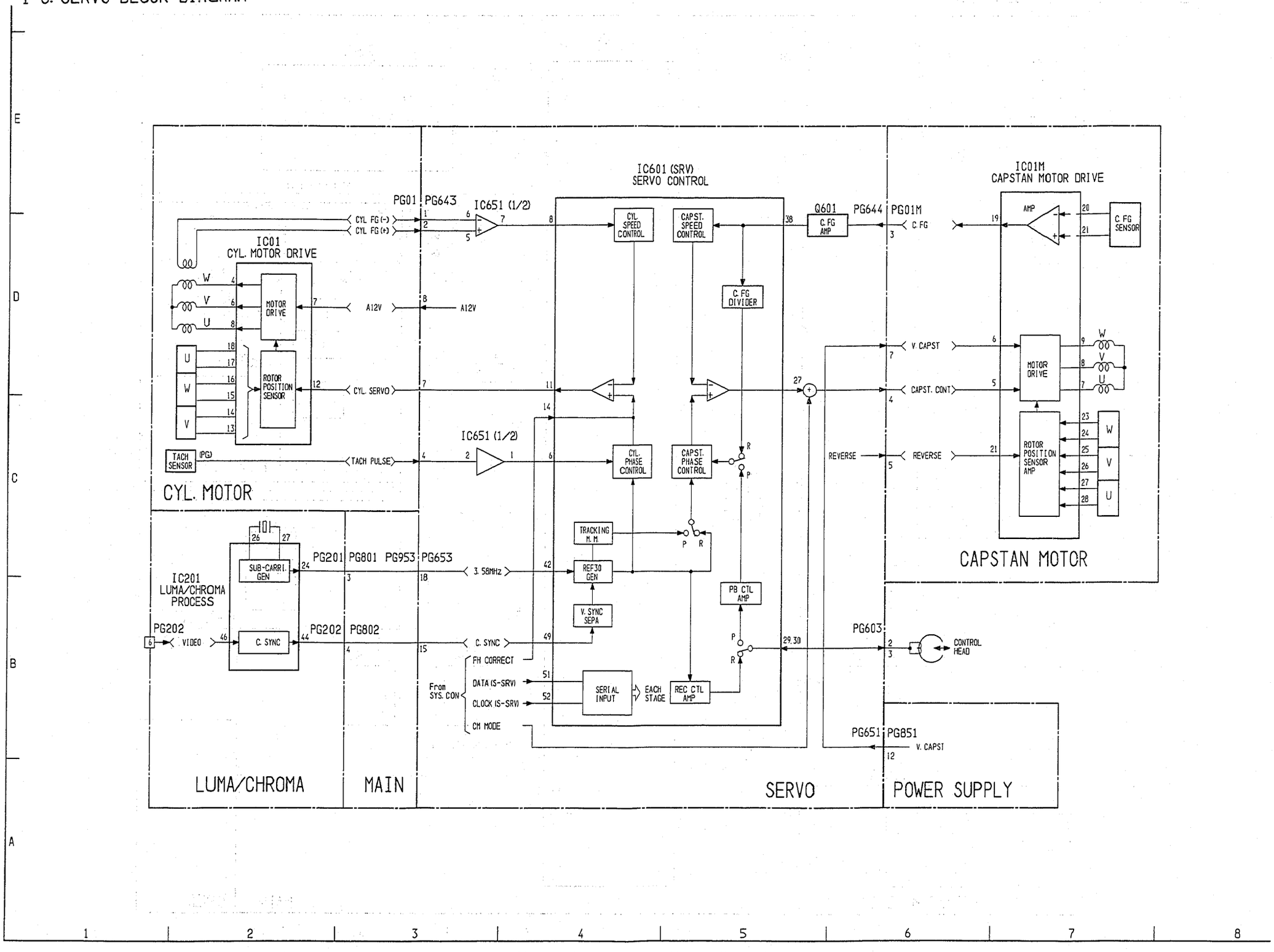
1-4. AUDIO BLOCK DIAGRAM



1-5. SYSTEM CONTROL BLOCK DIAGRAM



1-6. SERVO BLOCK DIAGRAM



2. MICROPROCESSOR PIN FUNCTION TABLE

SYSTEM CONTROL μP (IC901) PIN FUNCTIONS

Pin No.	I/O	Active Level	Abbreviation	Function
1	I	A/D	AFT	Detects the variation of the AFT voltage applied from the IF unit to tune the station correctly.
2	I	A/D	MTS MODE	Detects the MTS mode. NORMAL(5~4.1V) STEREO(4.1~2.8V) SAP(2.8~2.1V) SAP/STEREO(2.1~0V)
3	O	-	NC	
4	O	Pulse	CLOCK(M-SRV)	These are the data bus lines between the M-μP and SERVO IC. The data is sent to the SERVO IC synchronized with CLOCK signal.
5	O	Pulse	DATA(M-SRV)	
6	I	Hi	CLOCK FAST	Fixed to GND.
7	O	-	NC	
8	O	Pulse	CLOCK (M-PLL/CG)	This is a common data bus between the M-μP and each of 2 ICs (PLL and character generator IC). The data is sent to the selected IC synchronized with clock signal after the reception IC is selected by chip select outputs at pins 25 and 10.
9	O	Pulse	DATA (M-PLL/CG)	
10	O	Lo	ENABLE(CG)(Lo)	Selects the data reception IC. A common data line is provided between the M-μP and each IC (PLL IC and character IC). When sending the data, the μP sets the chip select line to active level until the data transfer is completed.
25	O	Hi	ENABLE(PLL)	
11	O	Hi/Lo	VCR/TV	When the VHF RF switch is set to "VCR", the RF modulator's output is selected and applied to the VHF output jack on the rear panel. Conversery when the VHF RF switch is set to "TV", the VHF antenna's output is selected.
12	O	Pulse	CLOCK (M-ROM)	Data transfer lines between M-up and EAROM. Pin 13 is Bi-directional port.
13	I/O	Pulse	DATA (M-ROM)	
14	O	Hi	EP	Tape speed mode output.
15	O	Hi	LP	
16	O	Hi	SP	
17	O	Lo	PB(Lo)	Sets the video and audio circuits to play.
18	O	-	NC	
19	O	Hi	V.REC	Controls the REC 9V regulator.
20	O	Hi	A.REC	Sets the Audio circuit to recording mode and controls the flying erase osc circuit.
21	O	Lo	MONO (Lo)	Audio MONO set output Lo; MONO mode Hi; STEREO mode.
22	O	Hi	SAP SET	Outputs "Hi" during SAP receiving and SAP setting modes.
23	I	Pulse	C.FG DIV.	Monitors whether or not the slack is rewound to the supply reel disk during eject. The CFG pulses are also utilized as clock signal to measure the amount of the backspace during record-pause.
24	I	Pulse	CTL(COUNT)(Lo)	Inputs CTL DIV. pulses in order to calculate the linear time counter.
30	I	Pulse	CTL(SLOW)(Lo)	Inputs CTL DIV. pulses in order to process the slow mode.
26	O	PWM	CM PWM	Applies this output to the capstan driver instead of the capstan servo output during slow/still and eject or cassette loading mode(softlanding).
27	O	Hi/Mi/Lo	MONITOR	Audio output control "Hi" LINEAR, "Mi" Mix, "Lo" Hi-Fi.
28	O	-	NC	
29	I	Lo	Hi-Fi INDI (Lo)	Hi-Fi INDI. Input "Lo" during Hi-Fi mode.
31	I	Pulse	60Hz	Utilized as a clock pulse for time count and is also used to detect power failure.
32	I	Pulse	TRACK.TRIG.	Tracking mono-multi signal input. Utilized for detecting the power line short circuited.
33	I	Pulse	SW30Hz	Monitors the frequency of SW30Hz to detect that the cylinder motor rotates correctly during record and play. The SW30Hz signal is also used to control supplying the video signals to the heads.
34	I	Pulse	IR PULSE	Decodes the IR remote code from the IR transmitter and places the VCR in the commanded mode.
35	I	Lo	RESET (LO)	Initializes the μP when the μP is powered.
36	I	—	OSC I(33kHz)	Generates a 32.768 kHz clock signal for the timer during backup mode.
37	O	—	OSC O(33kHz)	

Pin No.	I/O	Active Level	Abbreviation	Function
38 39	I O	— —	OSC I(6.3MHz) OSC O(6.3MHz)	Generates a 6.3MHz clock signal which is utilized as the main system clock signal in modes other than backup mode.
40	–	-	Vss	Connected to Ground.
41	O	-	NC	
42	O	Hi/Lo	L.A.PB/EE SW	Controls the linear Audio PB/EE SW. "Hi":PB, "Lo":EE.
43	O	Hi	REVERSE	Sets the capstan rotation direction to reverse.
44	O	Hi/Mi/Lo	CM MODE	Selects the capstan motor operation mode. "Hi":REEL mode, "Mi":SERVO mode, "Lo":BRAKE mode.
45	O	Lo	POWER ON (Lo)	Turns on 9V switch. when the internal power switch is turning on. The internal power switch is turned on and off when the power switch is pressed, the cassette is inserted or malfunctions occur.
46	I	Lo	DUTY (Lo)	INDEX signal input. "Lo" when INDEX signal exists.
47 48	O -	- -	NC NC	
49	I	Lo	SYNC. DET (Lo)	When a "Lo" is applied, programmes the selected channel in the memory in auto-programming mode and sets the fine tuning operation to on in the normal mode.
50 51	O O	Hi/Mi/Lo Hi/Mi/Lo	fH CORRECT 1 fH CORRECT 2	Horizontal jitter correction signal in slow mode.
52	O	Hi/Mi/Lo	HEAD SW	Outputs the head switching signal. "Hi":transient+SEARCH, "Mi":slow/still and "Lo":normal.
53 54	I I	Lo Lo	FWD END (Lo) REW END (Lo)	Releases the instrument from the commanded mode when "Lo" pulse is applied from the end sensor on the mechanism. Each sensor is responsible for monitoring the ends of tape. In addition both end sensors are also responsible for monitoring that no cassette is present.
55 56	I I	Pulse Pulse	S.REEL T.REEL	Monitors the take-up reel frequency to detect whether or not the slack is rewound to the take-up or supply reel. S.REEL pulse is utilized for remaining time count during super REW mode with T.REEL pulse.
57	O	Hi	REC MUTE	Inhibits supplying the video signal to the video head, video output and RF modulator. Stops generating the bias signal applied to the audio and full erase heads during loading and pause.
58	O	Hi	CURRENT UP	Outputs "Hi" to increase the video recording level for five seconds after assemble mode is released.
59 60	O O	Hi Hi	LOAD UNLOAD	Controls the loading motor to place the mechanism state in mode corresponding to the commanded mode.
61 62 63 64 65 66 67 68 69	O O O O O O O O O	Pulse Pulse Pulse Pulse Pulse Pulse Pulse Pulse Pulse	GRID (9) GRID (8) GRID (7) GRID (6) GRID (5) GRID (4) GRID (3) GRID (2) GRID (1)	Drives the multi-function digital display synchronized with segment control signals at pins 72 through 80.
70 71	O O	- -	NC NC	
72 73 74 75 76 77 78 79 80	O O O O O O O O O	Pulse Pulse Pulse Pulse Pulse Pulse Pulse Pulse Pulse	SEGMENT (i) SEGMENT (h) SEGMENT (a) SEGMENT (b) SEGMENT (f) SEGMENT (g) SEGMENT (c) SEGMENT (e) SEGMENT (d)	Drives the multi-function digital display dynamically synchronized with grid control signals at pins 61 through 69.

Pin No.	I/O	Active Level	Abbreviation	Function
81 82 83 84	I I I I	Hi/Lo Hi/Lo Hi/Lo Hi/Lo	M. STATE 3 M. STATE 2 M. STATE 1 M. STATE 0	Detects mechanism state position to control the loading motor. Refer to the Block diagram.
85	O	Lo	EDIT OUT(Lo)	Edit control output for controling the recording VCR ON/OFF.
86	I	Lo	EDIT IN(Lo)	Camera pause input "Lo"; REC PAUSE mode.
87	I	Hi	TEST	Set the TEST mode(X value).
88	O	Hi	TRICK PLAY	Disables the H correlative noise canceller in the video circuit during search and still. Shifts the peaking frequency of the 4.6MHz peaking circuit in the video circuit to 4.2MHz.
89	-	-	V.DISP	Supplied with -30V power source for driving the multi-function digital display.
90	I	Pulse	MODEL SELECT	Seg.a signal in:Hi-Fi, no:Linear. Seg.b signal in:LINE 1/2, no:LINE 1 model.
91	-	-	VCC	Connected to BU5V.
92	I	A/D	SHUTTLE IN	Shuttle ring operation input. Selects one of following 10 modes according to the input signals from Seg.c~Seg.e and Seg.g. 1.STILL or PLAY, 2.SLOW, 3. PLAY, 4. 2×PLAY, 5.FOWARD SEARCH, 6.REVERSE PLAY, 7.REVERSE 2×PLAY, 8. REVERSE SEARCH, 9.FAST FOWARD, 10.REWIND.
93	-	-	AVSS	Connected to GND.
94	-	-	VREF	The refference voltage of the A/D converter. Connected to 5V.
95	I	A/D	KEY IN	Receives one of 16 voltages corresponding to the pressed key on the front pannel. When no key is pressed, this pin is kept at "Hi". When a key is pressed, the divider corresponding to the pressed key is active and a divided voltage is produced. Then the μP digitizes this divided voltage to detect the pressed key. Refer to the Block diagram.
96	I	Hi/Mi/Lo	TAB/CST.UP/DN	Detects whether or not the record prevention tab which is located on the cassette is removed with "Mi" and "Lo" levels. With no tab, recording is inhibited or cassette is ejected automatically when the timer recording is set. Detects the cassette holder state with "Hi" and "Lo" levels.
97 98	I I	A/D A/D	ENVEL. (VIDEO) ENVEL. (AUD10)	Video Envelope input for Auto tracking. Audio Envelope input for Auto tracking.
99 100	I I	A/D A/D	METER R METER L	Audio Level Meter input for R ch. Audio Level Meter input for L ch.

Remote Control Buttons

POWER Turns the VCR on and off.

VCR1, TV, CATV, VCR2 Device buttons let you set the remote to control one of four devices.

MUTE Turns off the audio until you press MUTE again.

VOLUME/SLOW Increase or decrease the audio volume and plays back in adjustable slow motion.

REW Rewinds the videotape.

PLAY Starts playing a loaded videocassette.

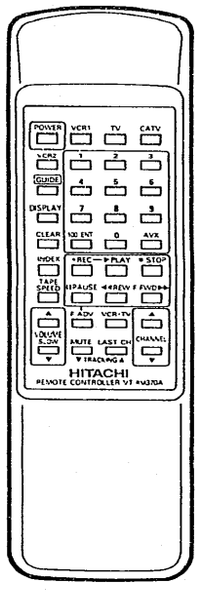
STOP Stops a videocassette from playing, recording, pausing, rewinding—or anything it is doing.

GUIDE Brings up an on-screen setup and programming guide, the Easy Guide System.

TAPE SPEED Switches between standard play (SP) and extended play (EP).

AVX Used for recording from an auxiliary input such as a stereo system.

INDEX Used for marking and searching for specific tape locations.



LAST CHANNEL Switches to the channel you watched previously during the current viewing session.

CHANNEL Top button switches to the next higher channel, bottom button switches to the next lower channel. For these to operate, you must have preset your channels.

REC Starts recording on the station the VCR is set to. (Press REC and PLAY at the same time.)

F.FWD Fast forwards the videotape.

PAUSE Temporarily stops the cassette from recording or playing. Press PAUSE again (or PLAY) to resume.

F.ADV Lets you advance the tape frame by frame.

CLEAR Used in on-screen programming and indexing.

DISPLAY Used in on-screen programming and indexing.

TRACKING Lets you fine tune the picture.

0 to 9 Number buttons used in on-screen programming. Can also be used to change channels. (Simply press 2 or 3 digits for the channel you want—such as 0 and 6 for channel 6, or 100/ENT and 2 and 4 for channel 124.)

VCR/TV Switches between viewing through the VCR and not viewing through the VCR.

When the Remote Doesn't Work Right

Check out these possibilities:

Low Battery

If the remote is not working even at close range, try putting in two fresh AA batteries.

Objects In the Way

There may be objects between the remote and the VCR—for instance, a stack of books on the coffee table, your 2-year-old, the dog. Hold the remote so that it points at the VCR with nothing in the way.

Set to Wrong Device

It may be set to VCR2 when you're trying to control VCR1. To confirm that this is the case, try pressing VCR2 and a function button (like channel up or down). If the remote works now, you know that it's set to VCR2. To reset it to VCR1, refer to the on-screen Initial Setup options.

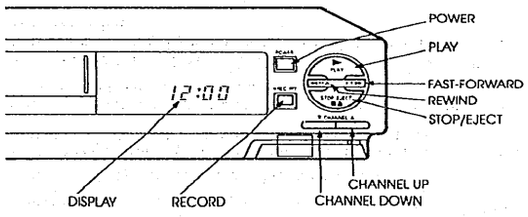
If You Just Want to Watch TV

For normal TV viewing, you do not need to disconnect the VCR. When the TV and VCR are already on, press POWER on the remote control. The VCR will shut off, but the TV will stay on.

If you are recording on the VCR but want to watch a different channel on the TV, press the VCR/TV button to switch back and forth between the TV channel and the recording channel.

Note
This service manual shows instructions on use of the M370A model.
Refer to the instruction manuals of each destination for details.

VCR Controls



POWER	Turns VCR power on and off.
STOP/EJECT	Cancels any videotape action, and when pressed a second time, ejects tape.
PLAY	Plays the loaded videotape.
DISPLAY	Shows time, channel, and status indicators.
CHANNEL	Up and down arrows for selecting channels.
REC/IRT	To begin recording.
F.F	To activate fast-forward.
REW	To start rewind.

Display Indicators

Watch for these signs and symbols that let you know that the VCR is responding to your instructions.

L R	Hi-Fi Tape Playing	SAP	Second Audio Program
OO	Cassette Loaded	EP	Extended Play
REC	Recording	SP	Standard Play
◀◀	Rewind	STEREO	Receiving Stereo Broadcast
▶▶	Fast-Forward	🕘	Programmed to Record Later
▶	Playback	L	Signal Being Received Through Audio/Video Input Jacks on Back of Unit
❚❚	Pause		
❚❚▶	Slow-Motion Play		
VCR	VCR Mode		

Meet Your On-Screen Guide

Your Hitachi VCR has a special feature called the Easy Guide System. This feature guides you through simple setup and programming tasks right on the TV screen.

With the TV and VCR turned on, press GUIDE on the remote control. You will see this screen:

```
HELLO I AM HITACHI'S
EASY GUIDE SYSTEM

SELECT LANGUAGE
1 ENGLISH
2 FRANÇAIS
3 ESPAÑOL

*TO START PRESS GUIDE
```

You may view all the on-screen instructions in English, French, or Spanish. When you first set up your VCR, it will be set to English. Press numbers 2 or 3 for the other language options.

Now press GUIDE a second time. This takes you to the main "menu" of setup tasks.

```
☐SELECT NUMBER 1 TO 7
1 INITIAL SETUP
2 CLOCK SET
3 ONE TIME RECORDING
4 DAILY RECORDING
5 WEEKLY RECORDING
6 PROGRAM REVIEW
7 PROBLEM GUIDE

*TO END PRESS GUIDE
```

You will do most of your programming and setup by pressing numbers on the remote control which correspond to options presented in this and other on-screen menus. Instructions are easy to follow, and blinking spaces on the screen will show you where your input is needed.

- When you want to leave the Easy Guide System, simply press GUIDE several times. This will back you out to the normal TV viewing screen.
- If you don't press any button for a while, the VCR will switch you back to an earlier screen or to regular TV viewing.

■Setup for First-Time Operation

Before you use your VCR to watch or record from your TV, you need to "tell" the VCR whether your TV uses cable or antenna input and let it program itself to receive your TV's channels. It's also a good idea to set the clock so you can do timed recordings later. With your TV and VCR hooked up, turn them both on and follow these steps using the remote control.

Initial Setup Options

Press GUIDE twice, then press 1 to bring up the Initial Setup screen.

```
INITIAL SETUP
1 ANTENNA/CABLE <ANT.>
2 AUTO CHANNEL SETTING
3 ADD OR ERASE CHANNEL
4 VCR CODING <VCR1>
5 MOVIE RETURN <ON>
6 AUDIO PLAYBACK <HIFI>
7 STEREO/MONO <STEREO>
8 SECOND AUDIO <OFF>
*TO END PRESS GUIDE
```

At the right of the screen are the default settings on your VCR. The default settings are the ones that are preset at the factory. They come up on the VCR every time the power goes out for more than 30 minutes—for example, during a storm or when you unplug the VCR.

Look at each item to see if it matches your own setup:

- To change a setting, press the button that has the same number as that item. This will cycle you through several options.
- When everything is set up as you want, press GUIDE again to back out of the Easy Guide System.

You need to set items 1 and 2 the first time you set up your VCR and any time you have a lengthy power outage. The rest of the items can be set later as needed.

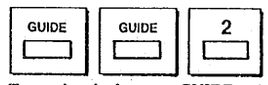
Here is what the options mean:

1	ANTENNA/CABLE	Press 1 to select the type of receiving setup you have: <ANT.> Internal or external antenna <CATV1> Ordinary cable <CATV2> Alternate cable (if CATV1 doesn't give you the channels you expect)
2	AUTO CHANNEL SETTING	Press 2 to automatically program the VCR to receive all the channels that come in on your antenna or cable.
3	ADD OR ERASE CHANNEL	Press 3 to bring up a screen that lets you add new channels or limit the channels to the ones you most often watch.
4	VCR CODING	Press 4 to enable the remote control to control a second VCR. Options are <VCR1> and <VCR2>.
5	MOVIE RETURN	Press 5 to select whether you want prerecorded movies (safety tab removed) to play automatically when loaded, and then rewind, eject, and turn off the power when done. Options are <ON> and <OFF>.
6	AUDIO PLAYBACK	Press 6 to control how the audio signal is processed by the VCR. Options are <HIFI> and <LINEAR>.
7	STEREO/MONO	Press 7 to control how the audio signal is recorded and sent to the TV. Options are <STEREO> and <MONO>.
8	SECOND AUDIO	Press 8 when you are ready to record a second audio program. Options are <OFF> and <ON>

Setting the Clock

This is easy to do and important for your later timed recordings. You'll need to set the clock when first hooking up your VCR, and any time the power goes out more than 30 minutes.

When you first plug in the VCR or after a power outage, the clock display will read "–:–".



To set the clock, press GUIDE twice, then press 2 to bring up the Clock Set screen:

```
CLOCK SET

TIME __:__
MONTH/DAY/YEAR
DATE __/__/__

☐FILL IN BLINKING SPACE

*TO END PRESS GUIDE
```

Press the number buttons on the remote control to set the current time—two digits for the hour and two for the minutes. Then press 1 or 2 for AM or PM, respectively.

For example, if it is now 2:15 PM, press 0, 2, 1, and 5 for hours and minutes, and press 2 for PM.

Continue pressing buttons to set the date. For example, if today is July 8, 1993, press 0, 7, 0, 8, 9, and 3 to get 07/08/93.

When you're done, press GUIDE twice to return to regular viewing.

Tips

- The item to be changed will blink on the screen as you go.
- The clock uses the 12-hour system. You set it for AM or PM.
- An illogical time (like 13 for the hour or 20 for the month) will not be accepted. A question mark displays instead of the illogical number.
- If you press the wrong digit, exit the screen by pressing GUIDE and recall the screen to enter the correct setup.
- The day of the week is set automatically.

More About Channel Selections

Your VCR is capable of receiving 68 broadcast TV channels (VHF 2–13, UHF 14–69) and 125 cable channels (CATV 1–125).

When you press 2 on the Initial Setup screen, the tuner automatically cycles through all available channels in your area and places them in memory. This takes 2-3 minutes. You can watch the progress on the VCR's display—when the channel numbers stop changing, programming is complete. Only when the power goes out for more than 30 minutes do you need to preset the channels again.

- In some areas channels cannot be switched when CATV1 is selected. Then, select CATV2 in your Initial Setup screen.
- For convenience, the TV channel numbers should match those programmed into the VCR. If your TV has automatic channel programming, set it on the same mode—ANT, CATV1, or CATV2—and let it reprogram to match the VCR.

Once channels are preset, you can use the up and down CHANNEL buttons to move through the active channels. Or you can press the number buttons to move quickly between channels that are far apart.

Removing Channels

You may not want to keep all the stations the auto-programmer selects, since you may prefer to have only a few favorite channels in the tuner's memory. Or, you may want to delete from memory a weak or unused channel that the tuner picked up.

- Erased channels cannot be selected by the up and down CHANNEL SELECT buttons but can still be selected by using the numbered buttons 0 to 9 and 100/ENT.

Adding Channels

Occasionally the auto-programming may skip an active channel because the antenna was pointed in the wrong direction or the channel had a weak signal or was "off the air" at the time of programming. Or you may change your mind about a channel you removed from memory.

To Add or Erase Channels

- Press GUIDE twice, then press 1 to bring up the Initial Setup screen. Item 3 lets you add or delete channels. Use the number buttons to enter the channel you want to change, then press STOP to delete it or press PLAY to add it.

Caution After a Power Failure

If a power failure lasting for more than 30 minutes occurs, reset the clock and perform the "AUTO CHANNEL SETTING" found in the "INITIAL SET-UP" menu.

Choosing a Mode for Audio Playback

Choose between hi-fi and linear modes, depending on your needs.

HIFI is the preferred setting because it works for all tapes whether they were recorded in hi-fi or linear modes. If the audio sounds distorted or unusual or there is no audio, try the LINEAR option.

When you set the option to HIFI, hi-fi tapes will play in high fidelity, and non-hi-fi tapes will play in linear mode.

Stereo vs. Mono Sound

When you select the STEREO option, your VCR records in stereo any station that broadcasts stereo sound. When a TV channel broadcasts in stereo, you'll see a stereo indicator on the VCR display.

STEREO is the normal factory setting because it works for both stereo and mono broadcasts. It is also necessary for recording a second audio program (SAP).

When you select MONO, sound is recorded as mono even when a channel broadcasts in stereo.

Use the MONO setting when the stereo signal is not strong enough for quality reception (for example, when there is signal drift or noise).

Hi-Fi Sound

Choose between hi-fi and linear modes, depending on your needs.

Hi-Fi sound is the same quality as that of a compact disc player. It's dynamic range of over 90dB will record either stereo or monaural broadcasts with the highest quality possible. Linear sound, on the other hand, will record monaural sound using the same format as a non hi-fi VCR. Stereo programs are recorded in hi-fi on both the left and right channels and also recorded on the linear track as monaural.

About Videocassette Tapes

Types

The best thing you can do for your VCR is use the best quality tapes available. This VCR uses VHS tapes only, which are the most common type. Look for the VHS mark on new or prerecorded tapes you buy.

Tapes are marked either T-120 or T-160, which signifies how many minutes of programming they can hold at standard recording speed (SP). To get the best quality picture, record at standard speed. But if you want to get more on a tape and are less concerned about the quality, set the VCR for extended play (EP).

Tape Capacities at Different Speeds

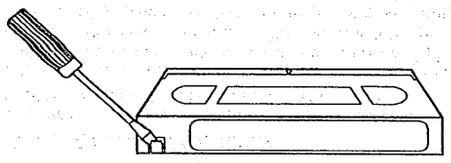
TYPES	RECORDING TIME	
	SP	EP
T-120	120 min.	360 min.
T-160	160 min.	480 min.

You may have noticed that there is also an LP speed. Your Hitachi VCR does not record at this speed, but it can play cassettes that were recorded in LP mode. No special setting is required for playback.

Safety Tabs Prevent Erasure

A safety tab is located on the front left edge of every videotape next to the label. Break this tab off if you want to keep a special tape from being erased accidentally. (Notice this tab is already removed on prerecorded tapes you buy or rent.) Poke a screwdriver or similar tip into the space behind the tab to break it off.

Don't worry, you can change your mind and record on this tape even after the tab is broken off—simply cover the hole with cellophane tape.



Advanced Operations

This section explains how to use the VCR's remote control to operate your TV. It also shows you how to hook up a cable box and how to connect a stereo or a second VCR for a complete home entertainment system.

Controlling Your TV with the VCR's Remote

Compatibility

The remote control is designed to be compatible with many televisions and cable converters, but will not work with every one made. If your TV or cable box does not respond the way it should when you program it as explained below, this remote may be incapable of operating it.

Once you have programmed the remote, you won't have to do it again until you change the batteries.

This Hitachi remote control can be used with your TV as well as the VCR, as long as your TV comes with a remote control. This feature comes in handy—you don't have to juggle two remotes.

The remote control is compatible with the thirteen makes of TVs listed below—but don't be alarmed if yours is not on our list. You may still be able to program the remote for your TV.

Every TV that comes with a remote control is set up to detect certain infrared signals. You need to program the VCR's remote control to send signals that your TV will recognize and respond to. Here's what to do:

Programming the Remote Control

- Turn the television on (any channel is okay).
- Aim the VCR's remote control at your TV set. Hold down the TV button (*not* the TV/VCR button) while you press the number corresponding to your brand of television as shown in the chart (page 41).

For example, if you have an RCA television, press TV and 0 at the same time. If this button combination sends a signal that matches with your TV, the channel will change on the TV, and you'll know the remote is set to control the television.

- If that button combination does not change the TV channel, go through the whole list of button combinations one by one until you find one that does change your TV channel.

Also, if your brand of TV is not listed in the chart, try all the number buttons. One of them may work for you.

If the TV channel still doesn't change after going through all the button combinations listed, it is likely that you will not be able to program this remote control for your TV.

TV Brands	Press TV and This Number
Hitachi	1
Zenith	2
Sony	3
Magnavox	4
Sanyo	5
Gold Star 1	6
Toshiba	7
Gold Star 2	8
NEC	9
RCA	0
Panasonic	CHANNEL (up arrow)
Mitsubishi	CHANNEL (down arrow)
JVC	100/ENT
Sharp	LAST CH

Controlling the TV

Once programmed, the VCR's remote control is ready to control the TV.

- First press TV to change to the TV function mode, then press the button of the TV function that you want.

For example, press TV and the CHANNEL up arrow, and the TV station will change to the next higher station.

- Press VCR1 to operate your VCR with the remote again.

Be aware that not all of your TV's functions may work even though the remote control is correctly programmed.

Hooking Up to a Cable Box

The cable box brings all the advantages of pay cable, but finding a satisfactory hookup can be challenging. To sort out what to do, we suggest a step-by-step approach to installation.

You will need RF TV splitters, coaxial cable jumpers, and possible RF switches to try various configurations. These are not furnished with your VCR because each installation will have different needs and require different cable lengths.

Before you begin, take a close look at the back of your TV to see where cables are currently connected. You may need to reconnect them that way later. As an aid to memory, use masking tape to label each cable and connection.

A Step-by-Step Approach

Try the hookups listed as Options 1 through 4. They are based on whether the cable channels signals are scrambled, unscrambled, or a combination. (Your cable company can tell you more about this.)

After each hookup, power up the VCR and the TV. Use the Initial Setup screen (page 20) to select option CATV1 or CATV2. Then check out the system using these questions as a guide.

- Does the TV receive the same number of channels as before the installation?
- Does the VCR record all channels?
- Do the VCR and TV remote control functions work?
- Can I record on one channel while watching another?
- Do I receive my pay channels, and do all special cable features work?

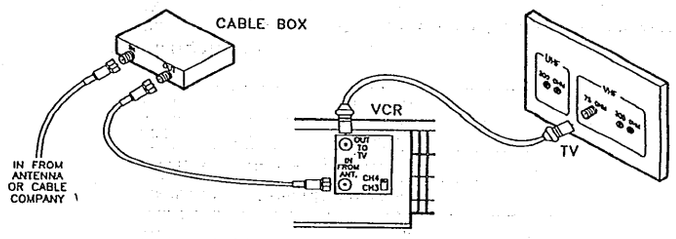
If any function does not work, or works in an unexpected way, hook up everything the way it was when you started and begin again with the next hookup option.

If you don't have a direct video connection—the one using the audio/video cable—make sure the TV channel is set to 3 or 4 when you play back a tape.

Consult the cable company or the cable converter manual for assistance in using the VCR with a cable converter. You will probably need to set the VCR to channel 3 or 4 and then use the cable converter to switch stations. There may be additional procedures for picking up pay-for-view or scrambled channels, which the cable company will gladly help you with.

Option 1—All Channels Scrambled

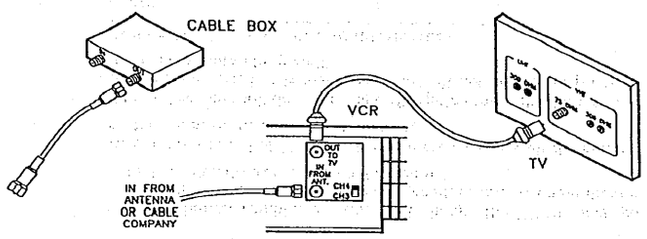
1. Remove the cable company's cable line from the back of your TV. Connect it to the IN FROM ANT lower jack on the back of the VCR.
2. Using the 75 ohm coaxial cable supplied with your VCR, connect either end to the VCR's OUT TO TV upper jack.
3. Connect the other end of the 75 ohm cable to the TV, in the same place where you removed the cable line.



Check all the TV and VCR functions. If you don't get all the functions you want, proceed with Option 2.

Option 2—All Channels Unscrambled

1. Remove the cable company's cable line from the back of the cable box that goes to your TV. Connect it to the IN FROM ANT lower jack on the back of the VCR.
2. Using the 75 ohm coaxial cable supplied with your VCR, connect either end to the VCR's OUT TO TV upper jack.
3. Connect the other end of the 75 ohm cable to the TV, in the same place where you removed the cable line. *Note:* You will end up with an extra cable that originally went from the cable box to the TV.

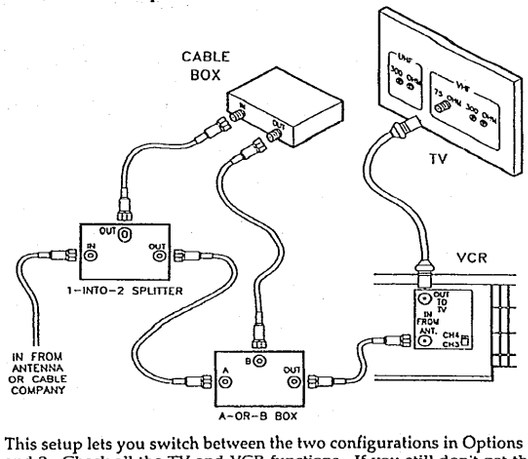


Check all the TV and VCR functions. If you don't get all the functions you want, proceed with Option 3.

Option 3—Some Channels Scrambled

This hookup requires three coaxial jumpers with connectors, a 1-into-2 splitter, and an A-or-B switch box.

1. Disconnect the cable from the cable box and attach it to the input line of the 1-into-2 splitter.
2. Using a coaxial jumper, reconnect one of the splitter outputs to the cable box's input that you just freed up.
3. Using a second coaxial jumper, connect the other splitter output to the A of the A-or-B switch.
4. Using the cable box output line, connect the cable box receptacle to the B of the A-or-B switch.
5. Using a third coaxial jumper, connect the output of the A-or-B switch to the input of the VCR.
6. Take the coaxial cable that is still connected to the television and hook it to the output of the VCR.



This setup lets you switch between the two configurations in Options 1 and 2. Check all the TV and VCR functions. If you still don't get the functions you want, proceed with Option 4.

Option 4

If none of the preceding hookups work, check with your cable company. You may need to purchase a video switching system from your local electronics or video retailer. This will easily handle most hookup problems.

Remote Control of the Cable Converter

If you have a cable converter, you will probably want to program your VCR's remote control so you can easily change channels. The process is the same as for programming the remote to operate your TV. For additional details, see page 40.

- Hold down the CATV button and press the number of your brand of cable box (shown in the chart).

If that button combination does not work, or if your brand is not on the chart, just go through all the button combinations until you find the one that works best.

Cable Converters	Press CATV and This Number
Jerrold 1	1
Jerrold 2	2
Jerrold 3	3
Hamlin	4
Scientific Atlanta	6
Pioneer	7
Philips	8

To operate the cable box once the remote is programmed for it:

- Press CATV and then the button of the function you want.
- Press VCR1 to operate your VCR with the remote again.

Problem	Things to Check	Solution
TV cannot be operated by the VCR's remote control.	Is VCR remote control programmed for your TV?	Follow instructions in Advanced Operations to program the remote to send signals that your TV can recognize. (Not all TV brands are compatible.)
	Is remote control set to control the TV?	Press the TV device button, then press the button corresponding to the TV function you want.
Mechanical sounds during the STOP mode.	Has a loaded cassette been stopped more than 5 minutes?	Nothing is wrong. The tape protection mechanism is working. Eject the cassette if you are done viewing. Otherwise, no action is necessary.

Hitachi Service Hotline

Authorized Hitachi service facilities are available throughout the US and Canada. For the location nearest you, call the Hitachi Service Hotline at one of these numbers:

In the Continental U.S.A.

DIAL TOLL FREE
7 days a week, 24 hours a day

800-HITACHI
(1-800 448-2244)
You must state your zip code when calling

In Canada

QUEBEC	418-681-7719
MONTREAL	514-697-9150
TORONTO	416-821-4545
VANCOUVER	604-526-7881

HITACHI

VT-F370A/F371A TK No. 4304E TOKAI Consumer Electronics Division
VT-F372A/F375AW

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Printed in Japan (HBCI)